

AMERICAN ARTISAN

May 1961

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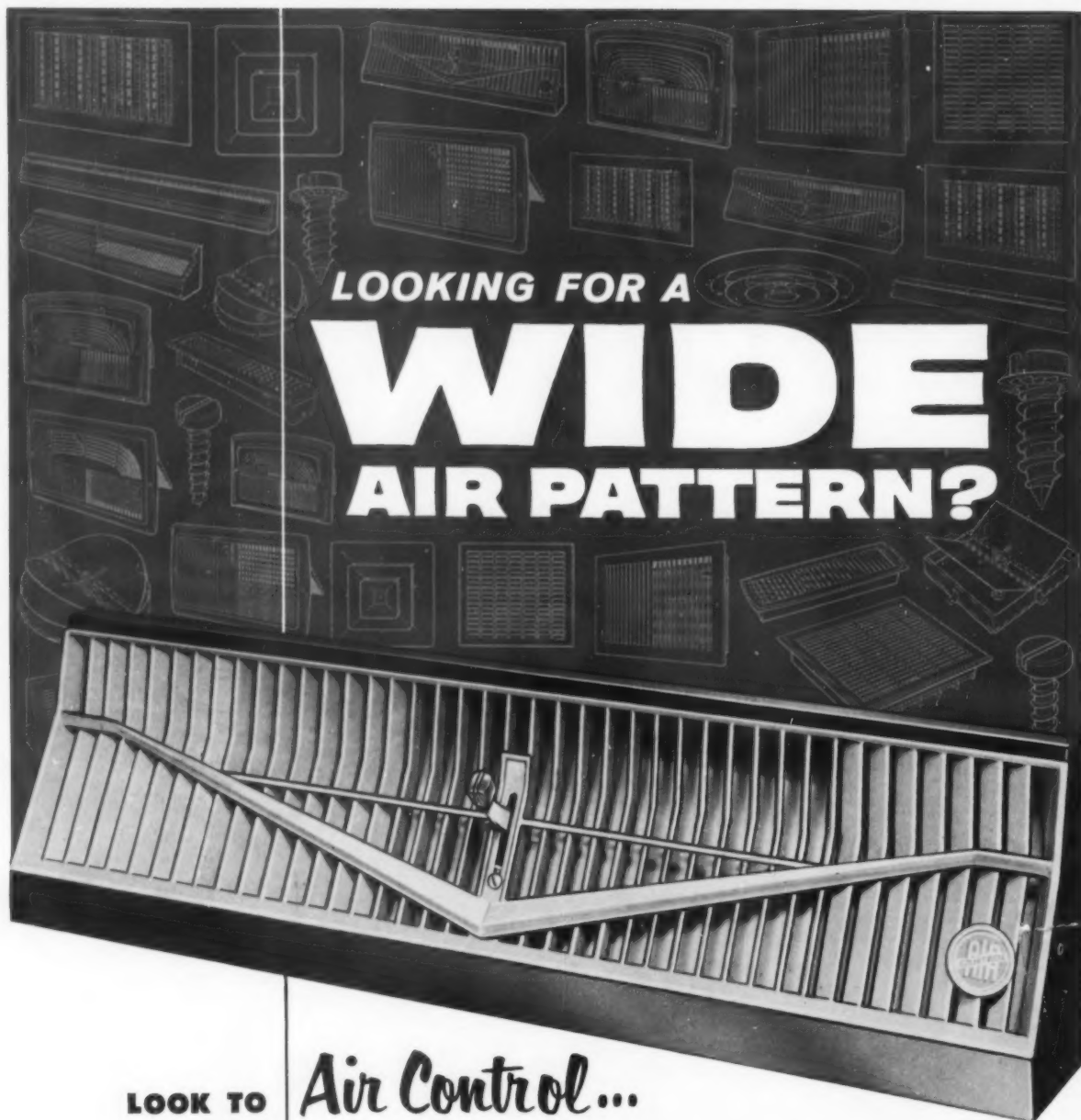
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LOOKING FOR A

WIDE

AIR PATTERN?

LOOK TO

Air Control...

A COMPLETE LINE PROGRESSIVELY ENGINEERED!



Wide air pattern is the stock-in-trade of Air Control's Super 38 Perimeter Diffuser. Re-set fins provide complete diffusion of warm or cool air to blanket a large wall area. Although only 18" long, the Super 38 provides a BIG 38 sq. in. of free area — excellent capacity for *both* heating and cooling. And check the styling. The face, of beige high-impact polystyrene, blends with any decor and will not crack, mar or rust. All this at a price to satisfy even your most budget-conscious customers.

The quality and progressive engineering of the Super 38 is typical of Air Control registers, grilles and diffusers. The complete line is described in Catalog 60-AC — write for your copy today!

AIR CONTROL PRODUCTS, INC. 161 CENTER STREET, COOPERSVILLE, MICH.

West Coast Warehouse: Leigh Industries (California), Inc., 649 S. Anderson Street, Los Angeles, California. **MADE IN CANADA BY:** Leigh Metal Products Ltd., 72 York Street, London, Ontario. **Prairie Provinces Affiliate:** Leigh Products Western Ltd., 313 Archibald Street, St. Boniface, Manitoba.

The inside story on the new Sundstrand Model G pump

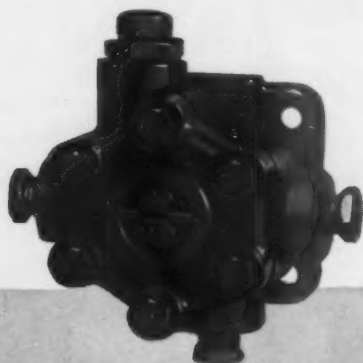
There is a brand-new addition to the popular line of Sundstrand fuel units—the Model G Pump. These new low-cost pumps are ideal for portable oil-heating units—such as those used on construction jobs, in warehouses, and in other locations where heat is required temporarily. They, of course, may also be used on stationary equipment.

The Model G is a small, compact, high-quality pump designed to be either motor end bell or bracket mounted. For reason of economy and simplicity, it does not have a built-in cutoff valve. Typical installations incorporate a separate hand cutoff or solenoid valve in the feed line.

This new pump is precision manufactured to the same high standards and close tolerances which,

over the years, have made Sundstrand fuel units the favorite choice of more than 100 leading burner manufacturers. Five sizes are available for operating speeds up to 3450 rpm.

Standard features include an adjustable poppet-type regulating valve with extra-long guide stem that eliminates pulsations . . . quiet, hydraulically balanced Rota-Roll gears . . . long shaft bearing . . . mirror-lapped face seal . . . available with internal recirculating bypass or optional return port. Genuine parts and expert service on these pumps available at Sundstrand Service Stations throughout the country. Write today for literature and full details on this latest product of Sundstrand research, engineering, and production capability.



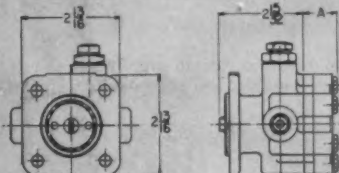
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DIVISION OF SUNDSTRAND CORPORATION

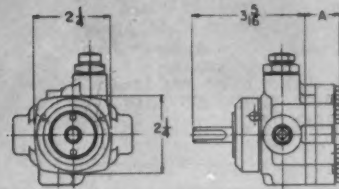
2210 Harrison Avenue, Rockford, Illinois
Eastern Sales Office: 89 Summit Avenue, Summit, New Jersey



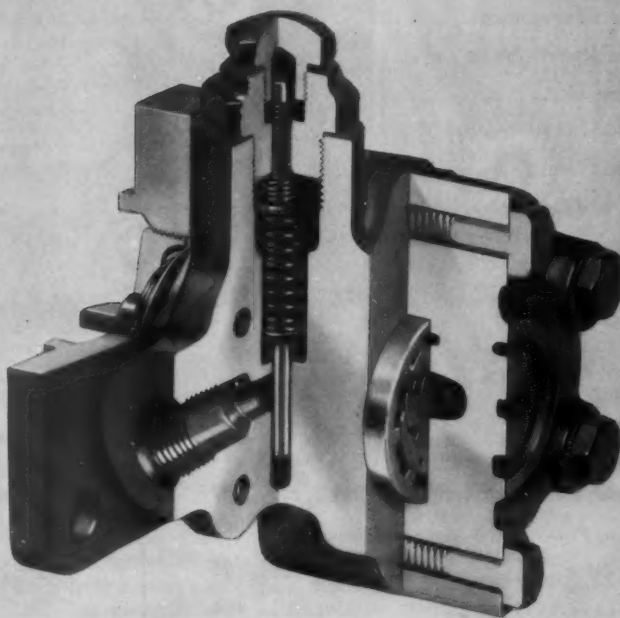
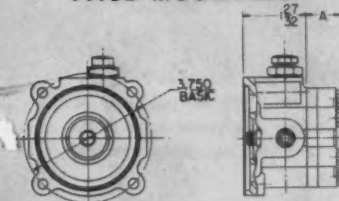
FLANGE MOUNTING



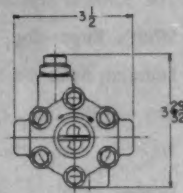
HUB MOUNTING



FACE MOUNTING



MODEL G



Model No.	Gear Width	"A" Dimension	Max. Nozzle Cap. gph*
G1	.180	15/16	2
G3	.280	1-1/32	8
G4	.340	1-3/32	10
G5	.437	1-3/16	15
G6	.562	1-5/16	20

*Based on 100 psi at 1725 rpm with No. 2 fuel oil.

AMERICAN ARTISAN

- Warm Air Heating • Sheet Metal Contracting
- Air Conditioning • Ventilation And Dust Removal

MAY 1961

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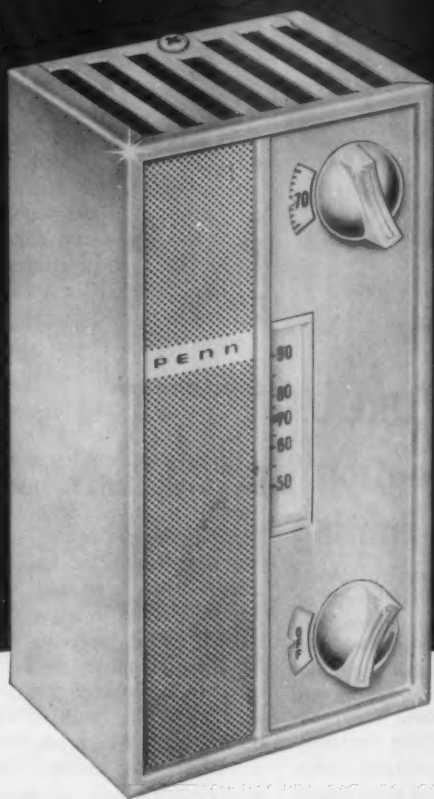
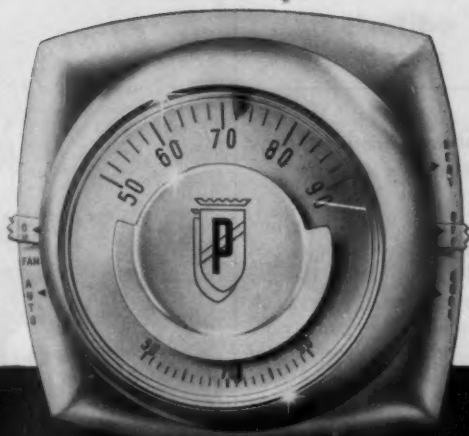
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FOR HEATING - COOLING

Here's the new Series 888 RIMSET thermostat with its newest feature . . . separate temperature selection scale and thermometer scale! This is the one thermostat unit that handles 12 different heating and cooling functions. You just stock variables of the subbase . . . the same thermostat simply plugs onto any one of the subbases. Remember . . . RIMSET is easiest-to-set, easiest-to-read, simply dial the rim, the dial face remains stationary!



FOR LINE VOLTAGE HEATING

All-new, Type 822 line voltage heating thermostat features unique, easy-to-use, locking-type temperature selector knob. Extras include a built-in but concealed adjustable high limit stop . . . low operating differential . . . large terminals on back of thermostat for easy wiring. Models also for cooling or heating-cooling.

3

quality thermostats . . . take your choice for heating, cooling or heating-cooling jobs!



FOR HEATING ONLY

New . . . trim, thin-line Type 820 room thermostat with the dependable quality you expect and get from Penn. It features easy-to-read slide-set dial and separate thermometer scale . . . snap-acting contacts . . . ring-type heat anticipator. Easy to install and wire . . . requires no mounting bracket, no leveling.

Learn more about these better thermostats, ask your wholesaler or write to Penn.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

the editor's notebook

Thumbing Through This Month's Artisan

... we find that most dealer-contractors consider May to be the key month in their summer air conditioning programs, since many prospects for central summer air conditioning are contacted during the season's first hot spell, which often occurs during this month. Exclusive prospect development and closing of sales are the two most important goals incorporated in spring sales promotion programs. *Where to Find Exclusive Leads this Summer* sets forth eleven sources helpful in prospect development, and explains how American Artisan's Standards for Rating Residential Cooling Systems card can be used as a sales promotion and sales closing tool. Belonging to various community groups is a good idea for the dealer-contractor, since the more people he comes to know, the more leads he can expect. Professional organizations are key sources in developing an exclusive prospect list. Others include old customers, other sales people, and special-need groups. Included, also, is a method whereby one customer can help you get fourteen additional prospect leads.

Varied

... uses of heating, air distribution, and refrigeration equipment cover more applications in home and industry than ever before. For this reason, the serviceman of today must be a technician well trained and professionally equipped — a specialist able to handle whatever service problems that confront him. His training should cover not only the areas mentioned above, but he should also have knowl-

Safe...Convenient
...Dependable
OUTSIDE LIGHTING

**MODERN
LIGHTER TUBE**

for your
gas fired
appliances



featuring
"push-button"
pilot lighting

Designed for the manufacturer to become part of original equipment on all makes and models... the Modern Lighter Tube, with "push-button" pilot lighting from the outside, enables your unit to be completely safe and free from sometimes hazardous lighting practices.

The Modern Lighter Tube carries further and burns more evenly with a minimum of pressure and with any type of gas...

ATTENTION MANUFACTURERS OF SECTIONAL TYPE BURNERS

Now... Modern Lighters, Inc. has available the "Modern Carry-Over Tube" for integral lighting of sections. Engineered by you to fit your product. Complete details and engineering samples available.

**MODERN
LIGHTERS,
INC.**

South Lyon, Michigan

WRITE FOR
LITERATURE



the editor's notebook

(Continued)

edge of the allied problems which arise in servicing and repairing components used in connection with the primary equipment. Electric wiring, piping, welding, etc., are related skills required by the well trained serviceman. In order to improve trouble diagnosis, the use of good instruments and tools is explained in *Well Equipped Servicemen Cut Call Backs*. Customers today are more critical of costs brought about through high wages and poor servicing. Servicemen equipped with good instruments can go a long way toward a reduction in unnecessary and unwarranted replacement of parts. The article further illustrates ways to cut service calls, and recommends a list of instruments and tools needed for a modern service kit.

Specialization

... is the policy of Utility Sales & Engineering Co., Rochester, Minn. *Streamline Operation Matches Plant Capacity* tells how this contractor has determined the type and size jobs best suited to his organization. That specialty of handling complete mechanical bids for jobs of \$25,000 or more is the result of adherence to set production procedures. For example, the bidding technique is based on a ratio of equipment to labor used, helping to bid a job close to its actual cost. Another management feature is a job-review meeting held upon completion of each job; work done, estimating procedure, and cost of installation are reviewed and filed for future use. The article continues with a description of the method used to fabricate ductwork. The company theory maintains that if work methods are made easy for

Upgrade your prospects and profits



NEW Mueller Climatrol Winter Air Conditioner

Stop "short changing" yourself by quoting competitive equipment only. Give your customer the choice of a top-quality unit, too—such as this new Model 119-219 gas or oil heating unit. *Its value overshadows price...* gives your customer a wider margin of benefits, gives you a wider margin of profit. Tell prospects about features like these, and they'll want to pay the difference...

NEW ENDURAL HEAT EXCHANGER* — A Mueller Climatrol exclusive — and a convincing sales point. We treat the heat exchanger inside and out with the same silicon coating used on jet engines — for longer life through better protection against high heat corrosion, rust, and chemical action.

QUALITY THAT OVER-SHADOWS PRICE — Quiet, reliable performance: volume air delivery, Thermoseal construction and insulation throughout, clean-burning cast-iron drilled-port burners. Styled for immediate sales appeal.

PROFIT-MAKING OPTIONS — Unit engineered for these total-comfort options: full summer air conditioning, Levelizer III® modulating flame sensitive to 1/10th degree, three filter options: Chemically-treated disposable, charcoal for odor removal, or built-in electronic filter.

*Mueller Climatrol means quality
— and quality means profit!*



*Available on gas units only.

2025 W. OKLAHOMA AVE., MILWAUKEE 1, WIS.

• 1024 WESTMINSTER AVE., ALHAMBRA, CALIF.

AMERICAN ARTISAN, MAY 1961

the editor's notebook

(Continued)

employees, they will get the most out of the equipment used.

Environment

... may soon become the primary reason for the selection of forced air distribution in connection with heating and summer air conditioning. *Air Treatment Center Offers Environmental Control* is the last of four articles prepared by the New Developments Committee of NWAHACA. This report deals with three control measure for air: 1) suppression of dust and lint; 2) disinfection of droplet nuclei; and 3) control of relative humidity. It has been determined that adequate filtering devices reduce germ presence in circulated air by retaining the dust particles upon which bacteria are attached. Two approaches to the improvement of filter efficiency are given, and the recommendations for additional filter studies are made by the committee. The committee has also found that germicidal vapor methods have not proven as effective as is desirable in reducing harmful bacteria that escape the filtering media. The committee has recommended that particle filtration and humidity be further studied in relation to each other.

Keep Communications Simple, Positive

"GETTING our ideas across in words" is the simple definition of communications that Charles Bury, Charles Bury & Associates, Dallas, gave before a seminar held for the National Association of Plumbing Contractors.

He effectively demonstrated that any businessman's communications today should be simple and positive. He

MAKE



YOUR CHOICE

for Year Round Heating and Cooling



YOUR CHOICE of 4 styles

BASEMENT

HI-BOY

COUNTERFLOW

HORIZONTAL

YOUR CHOICE of many sizes

YOUR CHOICE of control combinations

YOUR CHOICE of Gas or Oil firing

WRITE . . .

AIR-EASE

for information
and name of
nearest distributor

THE JOHNSON FURNACE COMPANY

2129 WEST 117TH STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

showed how use of "positive" words instead of "negative" words will produce the best impression.

"There's a difference," Mr. Bury said, "between saying 'Thanks for waiting' and 'Sorry to keep you waiting,' or between 'Thanks for your help' and 'Thanks for your trouble.'"

Using words that make people feel they're being useful or that show you're giving them service can do a great deal to build good will.

The telephone, properly used, is a valuable and effective sales instrument. He demonstrated the difference between good and bad customer relations over the phone by comparing a greeting like "Yes?" to "XYZ Heating and Air Conditioning. May we help you?" or "ABC Heating and Air Conditioning, at your service."

1903 Advertising Tenets Still Valid

It's EERIE how often advice from the past applies to present-day conditions. At a sales meeting of Janitrol Select Dealers, Paul Ryan, Janitrol advertising manager, in discussing the value of a good advertising program, read this valuable advice from a 1903 publication:

"Put no faith in the one-time ad, lest ye be deceived. There's nothing to it except by the rarest chance.

"You don't often do any worthwhile business with a man you've met only once, even when introduced by a mutual friend. You want a little time to study the man and ponder his statements. He has to win your confidence by coming at you again and again with good, sensible arguments.

"The one-time ad has no more chance against the more frequent ad than the one-call

Sell the most
sensational gas burner
ever built.

the only
INFRA-RED
GAS BURNER
in the world!



**This Amazing Freeman-Burdett
Burner Delivers Over 80%
Burning Efficiency Even In Old
Cast-Iron Gravity Furnaces!**

The secret is in the ceramic element and the high chrome mesh, which produces three kinds of heat . . . convected, radiant, and INFRA-RED! Tested and proved to give up to 40% more usable heat . . . a steady, even heat without the uncomfortable "ON-OFF" characteristics of conven-

Here's your chance to sell something really new . . . the only new burner development in over 25 years!

Portable demonstration kit sells 8 out of 10 prospects right in their own living room. Your prospects will be amazed at the smooth, noise-free operation. This convincing demonstration lets them feel the terrific heat generated by the ceramic element. 80% of them buy on the spot!

tional gas burners. Lifetime construction actually outlasts the furnace. In fact, you can sell this burner as a conversion unit . . . then go back and sell a new furnace later using the same burner! Works equally well on LP or natural gas.

**CLIP and MAIL THIS
COUPON NOW**

**Freeman Heating Division
Illinois Iron & Bolt Co.
Carpentersville, Illinois**

TO: ILLINOIS IRON & BOLT CO., CARPENTERSVILLE, ILLINOIS

GENTLEMEN: Yes, I'm very much interested in your Freeman-Burdett conversion burner. Send complete details immediately ☐
Have a salesman call on me as soon as possible ☐

NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

☐ Dealer ☐ Wholesaler ☐ Contractor ☐ Consulting Engineer

the editor's notebook

(Continued)

salesman against the salesman who comes early and often.

"Don't advertise till you can go in to win . . . till you can spend enough money to make it pay. Then concentrate your fire . . . pick the good papers, use good copy; spend your money where it will do you the most good.

"This means space large enough in which to say your say in a telling way, and often enough to show that you're very much alive and 'dead in earnest' in your efforts to get business."

This Point May Help Develop a Cooling Sale

HERE'S A GOOD comment to work into sales presentations at the proper time: "People who say you don't need summer air conditioning are usually those people who don't have it."

This May Be Source Of Modernization Sales

HOW MANY gas conversion burners do you think were installed during the past 10 years? More than two million, according to the Gas Appliance Manufacturers Association (GAMA).

Did you keep a list of those you installed? If so, why not check back on the earlier installations? You may find some good modernization prospects.

Builder Hard to Sell? Try This Argument

DURING the 1961 sales meeting of the Peerless Corp. and its Round Oak division, Tom Mutz, Indianapolis branch manager, suggested a good argument for dealer-contractors to use with builders who are slow to adopt new ideas in heating and cooling. He



Swiss Chancery Building, Washington, D.C.

LO-BLAST

POWER GAS BURNERS SELECTED FOR SWISS CHANCERY



A pair of No. 5N-4 Lo-BLAST Burners supply 2,000,000 BTU/hr. each

Lo-BLAST Power Gas Burners were selected for this installation because they eliminate the fuel waste caused by uncontrolled draft!

The Lo-BLAST Burner uses an extremely quiet, low speed blower to provide perfectly controlled primary and secondary air. Operation is always independent of natural draft conditions—when the burner shuts off, the flow of air stops, permitting the heating plant to retain much of its heat. Combustion is completed in an incandescent firebox, with radiant heat applied to the crown sheet as well as side walls.

Lo-BLAST eliminates the need for high chimneys—"inshot" design cuts maintenance—complete factory assembly reduces installation costs. Each unit is factory tested on gas before shipment.

Lo-BLAST and Economite Power Gas Burners are available in capacities from 75,000 to 20,000,000 BTU/hr. Write for literature.

MID-CONTINENT

METAL PRODUCTS CO.

1960 N. CLYBOURN AVE., CHICAGO 14, ILLINOIS

the editor's notebook

(Continued)

suggested telling such builders: "Only five percent of the people in this country are leaders; the other 95 percent belong to the herd. If you follow the herd, you can never expect to be a success. Try this new equipment and become a leader."

Says Profit Level Must Be Raised

ROGER M. BLOUGH, chairman of U. S. Steel Corp., speaking before the Los Angeles Chamber of Commerce, observed that there must be more profit in the American business system.

He asked, "Why, when profit is so important to everyone, do so many—or is it only the vocal few—criticize and downgrade profit?"

Why is there so much misunderstanding about profit?

Why do some well-meaning people dislike and distrust profit? And why do businessmen so often apologize for profit and allow it to be pinched, squeezed, siphoned away, perhaps even slowly destroyed?

"Why this adverse reaction to profit? It cannot be that profits are rising too rapidly, because they have failed to keep pace. In recent years there has been a steady reduction of profits as a percentage of national income. Ten years ago corporate profits were more than 9 percent of national income. By 1960 they had been squeezed down by more than one-third, to only about 5.5 percent of national income.

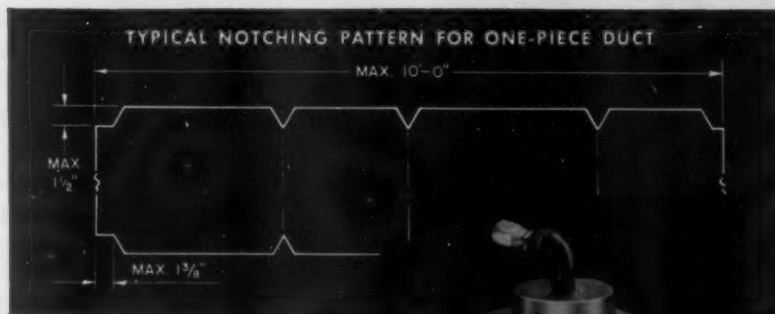
"Everyone knows that competition is about as severe as it can get these days. Each one of you has his own competitive problems just as we do in steel. So we must look beyond competition."

By looking beyond compe-



notch up to 600% faster than by hand with ***LOCKFORMER'S*** new **SPEEDNOTCH**

gangnotch
sheet metal
hydraulically
without
layout or
scribing...



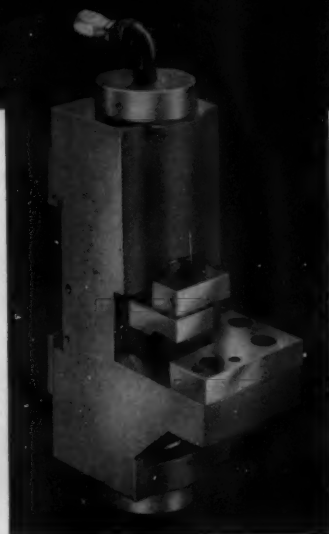
SPEEDNOTCH—the perfect tool for preparing ductwork to receive government cup clip (pocket lock), bar, slip or "S" and drive connections. Instantaneous setting for up to 5 notches in pieces up to 16 gauge mild steel with 3 1/2" to 10' stretchout. Speednotching is profitable even on a single-piece set-up.

Lockformer's new Speednotch is completely self-contained with 5 sets of punches, dies and holders, hydraulic pump with adjustable pressure setting control, 8-gallon reservoir and "quick-disconnect" fittings for individual punch unit control.

Drop us a line for full details and specifications.

Equipped with three 40° vee notches and two 115° corner notches. High carbon, high chrome tool steel punches and dies. Notch depth 1 1/2" maximum; adjustable for less depth when required.

Left corner notch shown at right.



LOCKFORMER®

TIME SAVING. MONEY MAKING EQUIPMENT

manufactured by

THE LOCKFORMER COMPANY

Dept. A 4615 West Roosevelt Road, Chicago 50, Illinois
In Canada: Brown Boggs Foundry & Machine Co., Ltd., Hamilton, Ont.

the editor's notebook

(Continued)

tion, Mr. Blough means that we must have faith in our ability to serve customers well enough to deserve a fair profit, which is needed on every job. It's the fear of what a competitor might do that forces the asking price down to a poor — and unsafe — profit level. It takes courage and good sales ability to earn the good profits needed to improve a company's operation and its services to customers.

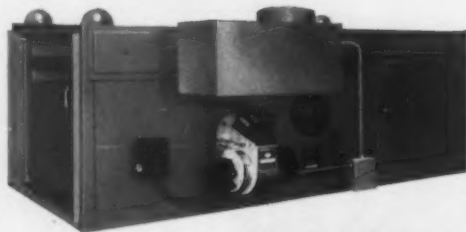
Retirement Plan Is Deferred Pay Increase

LAST MONTH in this column we described Small Business Management Aid 107 and defined deferred compensation for deserving employees. What deferred compensation means is that a key employee's total compensation is increased, but the increase does not become effective until after he has retired. In this way, an employee's security for the future is materially strengthened. A second aspect of deferred compensation relates to the premature death of the key employee. If that happens, the payments which he would have received after retirement are usually paid to his wife or children instead. Here is an illustration:

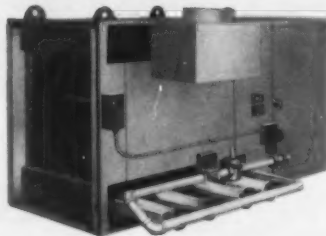
James A. Smith is 55 years old. He receives a salary of \$10,000 per year, and his employer provides for him a deferred compensation arrangement. In this case it means that he is to receive \$2000 per year for 10 years after he retires at age 65; that is, from age 65 to 75. If he should die before age 65, the \$2000 per year will be paid to his wife or children for the 10 year period.

It won't cost the employer any more to pay \$2000 per year for the 10 years after

J-C SUSPENDED FURNACES are engineered for EXTRA POWER



Oil-Fired Suspended
Model No. OL-350-S22,
224,000 Btuh output.



Gas-Fired Suspended
Model No. GS-24,
192,000 Btuh output.

New and practically unlimited zone-heating possibilities, plus a saving of valuable floor space and easy installation are yours with the great 23-model line of Jackson & Church Gas and Oil-Fired Suspended Heaters . . . all the way from 123,000 to 1,000,000 Btuh output. Find out about J-C's extra fuel economy and extra power to deliver an extra volume of air against abnormal static pressure. Update your files with current specs. Write today.

J-C AMERICA'S
LARGEST
AND MOST COMPLETE
WARM AIR FURNACE LINE.

Direct-Fired Unit Heater. 400,000 to 4,000,000 Btuh output. Floor-mounted, suspended, inverted models. Oil, gas or dual fuel.

12 Powered Tubular Enclosed Cabinet Models . . . 208,000 to 320,000 Btuh output. Oil, gas or dual fuel.

37 Powered Tubular Models with separate blower cabinets . . . 400,000 to 3,800,000 Btuh output. Oil, gas, dual fuel, or stoker firing.

J-C | **JACKSON & CHURCH**
DIVISION OF | YORK-SHIPLEY, INC.
YORK, PENNSYLVANIA
Planners and Specialists in Automatic Heat-Boilers to 600 hp. Furnaces to 4,750,000 Btuh

the editor's notebook

(Continued)

retirement than it would to give Mr. Smith an immediate \$2000 increase in his salary. Either way, the cost to the employer in this particular case would be \$2000 over a 10 year period.

Deferred pay, of course, need not be given instead of immediate salary increases, but may be given in addition to desirable current pay raises. Moreover, current salary scales need to be adjusted from time to time to keep them in line with competition. A happy key man must have adequate current pay to meet his living expenses. However, it is often not good economics to increase his current taxable salary enough to give him a sufficiently large margin over current living expenses to provide his own income after retirement. This is particularly true when it can be arranged at lower cost through your business.

If the employee had tried to obtain sufficient income in his current compensation plan to provide the same protection between the ages of 65 to 75, he would have had to ask for an increase of not \$2000 a year but \$2500 a year to have \$2000 a year left after income taxes — assuming a 25 percent rate applicable to his income bracket. Thus the company would have had to pay \$5000 more than the \$20,000 needed to finance the deferred plan. (These figures ignore the effect of interest on retained money to simplify the mathematics.) As the applicable income tax rate goes higher, the effect becomes more pronounced.

In next month's column, the significance of this application as it applies to small business will be covered.

Clyde M. Barnes

Editor



"Super-Flex" Acme-Hamilton Air Conditioning Hose

Acme-Hamilton Manufacturing Corporation the most progressive mechanical rubber goods manufacturer today now brings you "Super-Flex" Air Conditioning hose. A Flexible duct designed for general air conditioning use, this new hose is made of a flame-proofed fabric, neoprene impregnated and hard vinyl coated. A Galvanized coated reinforcement of high tensile steel wire, permits long bends without sagging. Double ply construction provides extra durability.

Made to meet NBFU standards for flexible ducting, Pamphlet 90A. Improved design reduces friction loss and improved noise dampening. Available in ten foot lengths, up to 6 inch. Larger sizes available on special order. Write for more information and samples today about this amazing new hose. Dept. MK-AC-8.

Agents inquiries invited.

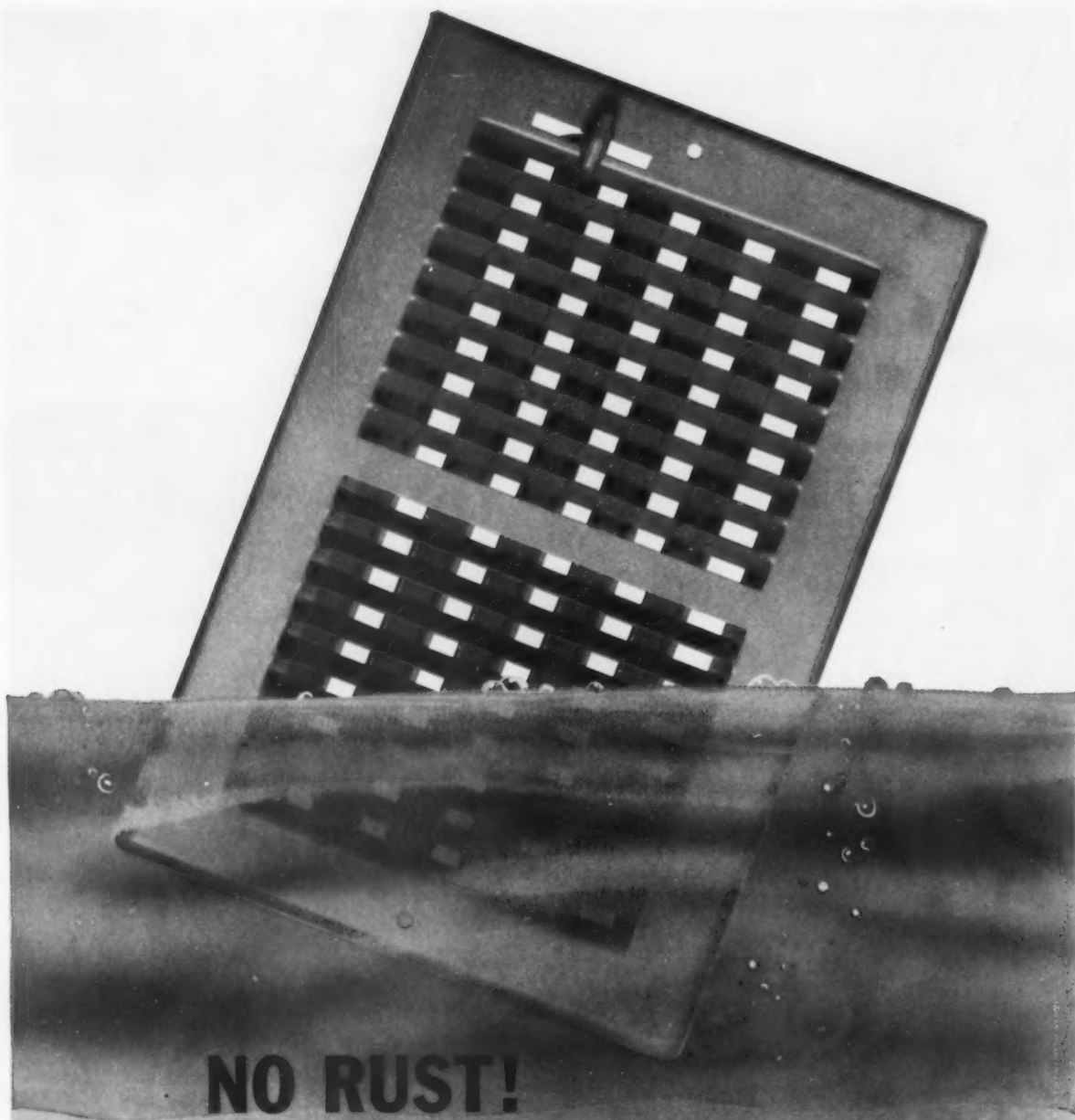


Acme/Hamilton

MANUFACTURING CORPORATION, TRENTON 3, N. J.

Industrial and Automotive Rubber Products Since 1870

ATLANTA • CHICAGO • DETROIT • HOUSTON • SAN FRANCISCO • INDIANAPOLIS
NEW YORK • SEATTLE • MILWAUKEE • PITTSBURGH • SALT LAKE CITY • LOS ANGELES



NO RUST! WHY?

Reason? All Lima air conditioning grilles and registers are treated with EPOX[®], the very same rust inhibitor used on submarines. It's another Lima exclusive; put there to keep your customers happy with the Lima equipment you sell. Write for our catalog and prices.

Lima[®]

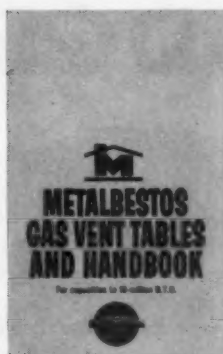
REGISTER COMPANY
1785 N. Cable Rd., Lima, Ohio

A COMPLETE LINE OF REGISTERS, DIFFUSERS AND GRILLES FOR HEATING AND COOLING... QUALITY-PLUS PRODUCTS OF AMERICAN CRAFTSMANSHIP.

More sales power from Metalbestos

NEW METALBESTOS QC IS RATED FOR 10-MILLION B.T.U. AND BACKED BY EXACT DATA FOR QUICK, SURE INSTALLATIONS

for the fast-growing multiple-story and commercial markets which demand technical know-how, dependable gas vent systems and minimum installation manhours. Ask your jobber salesman for all the details.



The new METALBESTOS GAS VENT TABLES and HANDBOOK

for sizing vents from 3" to 24" and for capacities to 10-million B.T.U. Available through Metalbestos distributors.



METALBESTOS DIVISION
WILLIAM WALLACE COMPANY
BELMONT, CALIFORNIA

MANUFACTURING PLANTS IN BELMONT, CALIFORNIA • LOSAN, OHIO



HODGEPODGE

TRAINING SCHOOLS are one of the big reasons it pays to standardize on Honeywell matched residential controls. Your service and installation men don't have to fumble through a hodgepodge of manuals to find the answers to their controls problems. They'll increase their knowledge of the Honeywell line and get the latest information on residential controls at Honeywell training sessions held in your own town or area. Over 100,000 men attend these schools every year.

And look what else you get! **SIMPLIFIED INVENTORY**—there's a quality Honeywell control and an All-Honeywell control system for every application. **CUSTOMER**

RECOGNITION—seventy-six years of leadership have made Honeywell a name they know and respect. **UNDIVIDED RESPONSIBILITY**—you'll look to one dependable source for your complete line of controls. **ON-THE-SPOT SERVICE**—with offices in 112 cities, staffed by experienced sales and service engineers, you'll always have expert assistance and the right replacement controls when and where you need them.

It all adds up to bigger profits for you. So call your nearby Honeywell office today. Or write Honeywell, Dept. AA-5-90, Minneapolis 8, Minn. In Canada, write Honeywell Controls, Limited, Toronto 17, Ontario.

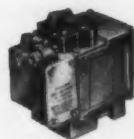
HONEYWELL INTERNATIONAL:
Sales and service offices in all principal cities of the world. Manufacturing in the United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.



OR HONEYWELL?



THE HONEYWELL ROUND sets the standard for thermostat excellence, just as the four controls at the right are typical of the quality controls that make up All-Honeywell systems. Whatever your application—forced air, hydronics, gas or oil—there's an All-Honeywell control system that will do the job best!



V 81
Gas Valve



L 498B
Fan Limit Control



RA 816
Oil Burner Relay



L 8024
Aquastat*

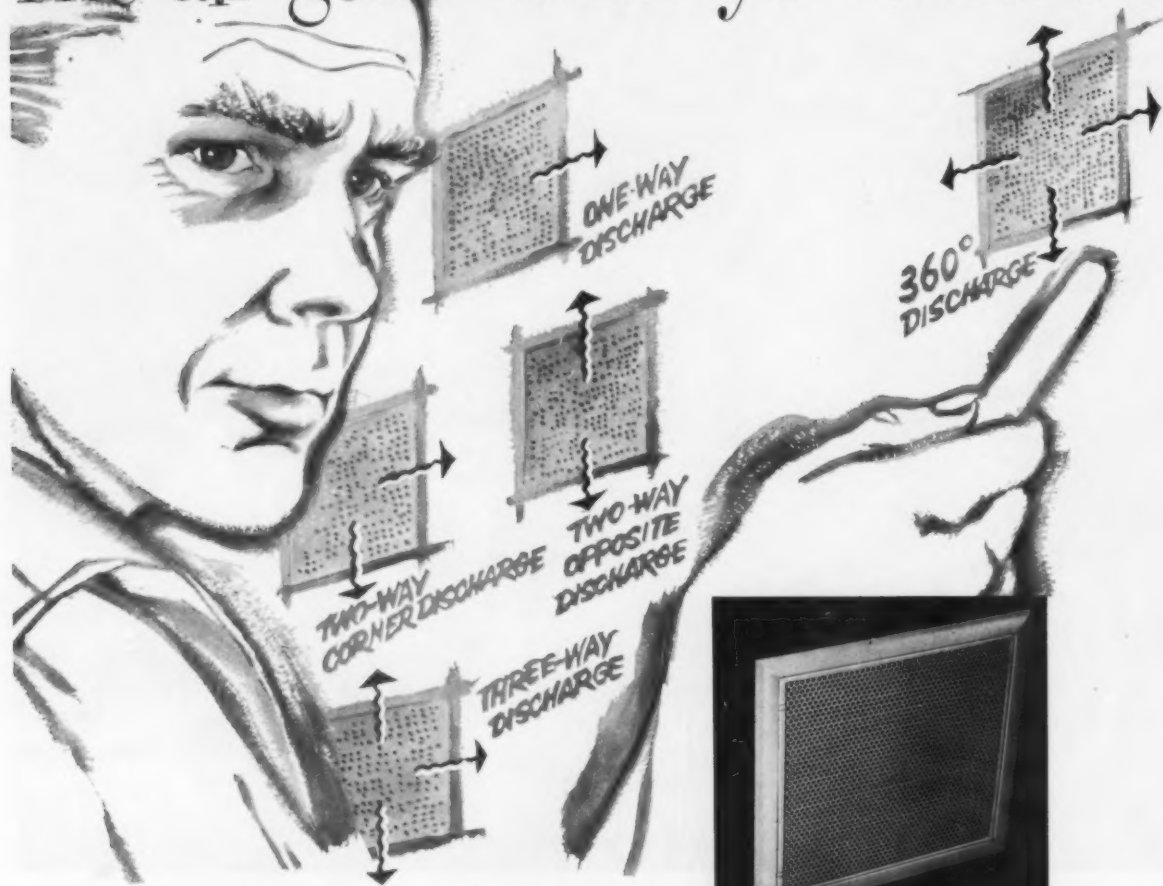
Honeywell

*Trademark



First in Control
SINCE 1885

The air goes where you want it...



...with the original square perforated face diffuser

Accurate selection data plus simple on-the-job adjustments avoids expensive call-backs

With modular construction, or any arrangement of partitions, Barber-Colman Uni-Flo square or rectangular ceiling diffusers with perforated faceplates provide the results of exhaustive laboratory tests and field quiet, draft-free comfort. Accurate performance data — experience — provide customer satisfaction.

Air patterns of these unique diffusers can be adjusted on the job for vertical or horizontal deflection, and for one-, two-, three-way, or 360° air discharge without altering the exterior appearance. Perforated faceplates are readily removable for ease of adjustment, installation, and maintenance. Clean, attractive design makes

these units inconspicuous — they blend well with every type of ceiling construction. Engineered air flow minimizes ceiling smudging — a plus benefit for your customers.

Two basic models speed installation: a recessed type designed for flush installation with acoustical tile, and a surface type with a one-inch flange for mounting with any type of ceiling construction.

For your best buy — get cost-saving installation ease, versatility of adjustment, and engineered air flow for customer satisfaction — use Barber-Colman perforated-face ceiling diffusers.

Call your local Barber-Colman Air Distribution field office or write for Catalog No. F-6597-2.



BARBER-COLMAN COMPANY

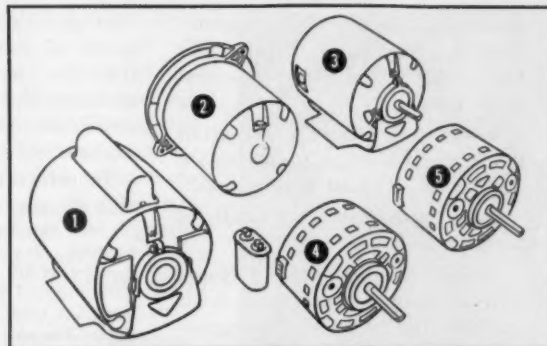
Dept. Q, 1106 Rock Street, Rockford, Illinois

When you need a motor for heating equipment **CHANCES ARE 100 TO 1 IT'S HERE**

... because these motors represent General Electric's complete line of years-ahead motors for oil burners, hot water circulator pumps, and belt- or direct-drive furnace blower applications.

They'll provide *extra reliability* because of their built-in quality, the result of G-E engineering know-how and manufacturing experience. You'll find them *easy to install*—because they're light and small, and built with your requirements in mind. And General Electric offers *fast, local service*—the result of a nationwide network of motor service stations, backed by 38 General Electric service experts who keep these stations up-to-date on motor service techniques.

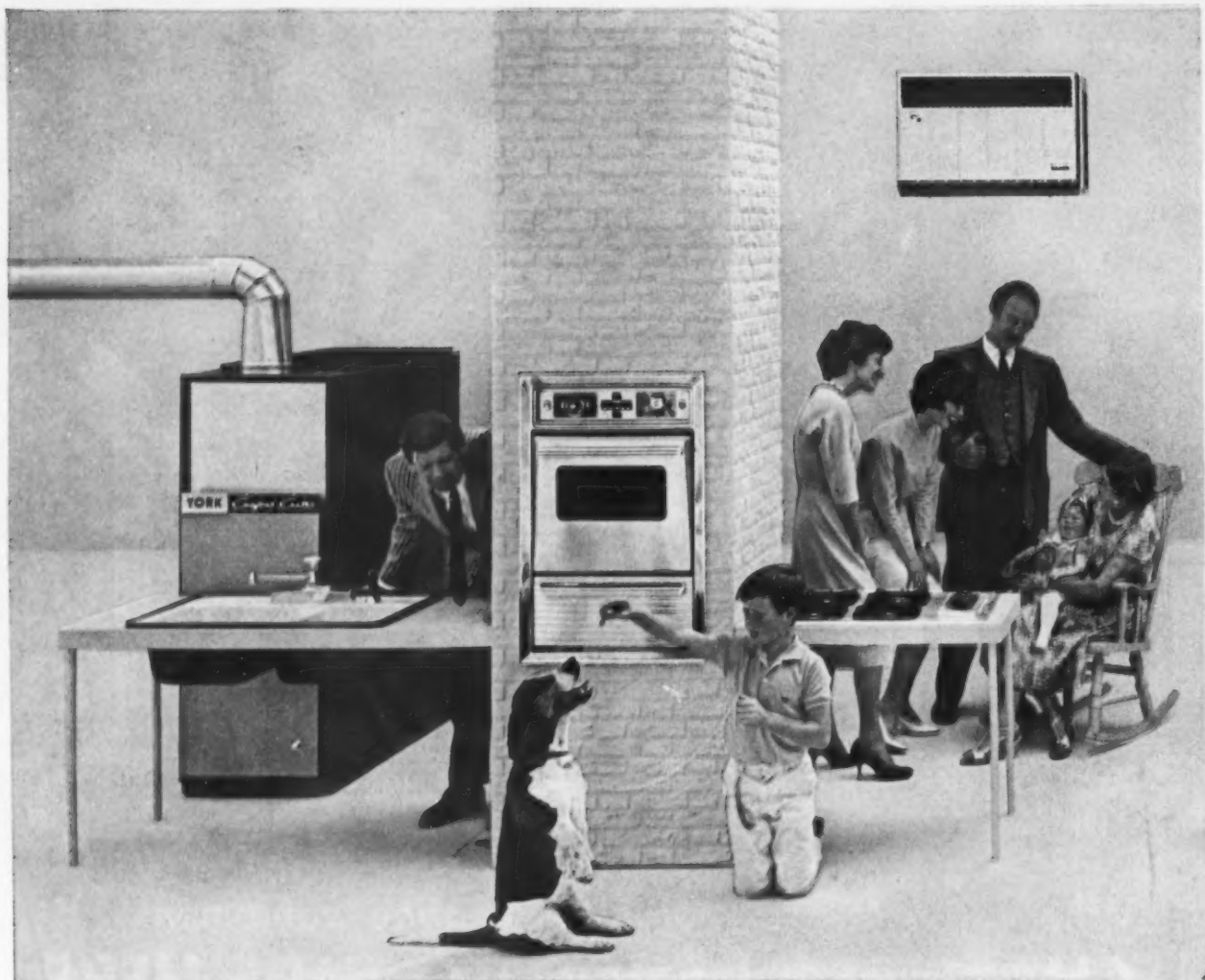
That's what we mean when we say you get **MORE THAN A MOTOR** with General Electric Form G motors. You'll find it pays to specify General Electric Form G motors on the heating equipment you install. And replacement motors are available at your local G-E distributor. For more information write to Section 722-10, General Electric Co., Schenectady 5, N. Y.



- 1 Capacitor-start motor for belt-driven applications
- 2 Oil burner motor
- 3 Split-phase motor for hot water circulator pumps and belt-driven applications
- 4 Permanent split-capacitor motor for direct-drive applications
- 5 Shaded-pole motor for direct-drive applications

Progress Is Our Most Important Product

GENERAL  ELECTRIC



A FAMILY GATHERING OF BORG-WARNER

Seems one characteristic or another runs in every family—usually as easy to spot as that of the redheaded clan above.

Sometimes, it's so unapparent that you can't tell a Smith from a Smoczynski without a genealogist.

Take the Borg-Warner family of home products.

Household appliances of Norge Division bear no resemblance to air conditioning and heating equipment of York Division. To look at B-W plumbing fixtures of Ingersoll-Humphries Division, you'd never know they are descended from the same family tree as products of B-W's Reflectal Corporation—Alfol aluminum foil insulation and KoolShade sunscreen.

Still, members of the Borg-Warner family of home products share an inherent characteristic with one another—that of *providing a life of comfort and convenience for a family such as yours!*

Introductions start at the left.

York Comfort Center with electronic filter . . . next best thing to nature herself for healthful year-'round comfort. Come summer, it fills entire home with cooled, dehumidified air. Come winter, same compact unit fills home with warm, Spring-like air.

Borg-Warner kitchen sink with new single-handle faucet . . . unsurpassed in every detail for lasting service.

Norge gas or electric built-in units . . . newest kitchen convenience! Case in point: Eye-Level Control Center of oven gives new insight to food preparation. Another: Meal Sentry of surface cooking unit maintains precise temperatures.

York room air conditioners . . . balanced for uniform temperature, for proper humidity removal, for draft-free circulation, for 82% more efficient filtering of dust and pollens. This is "balanced cooling," a York exclusive!

Norge Never-Frost refrigerator . . . champion of homemakers' campaign to banish defrosting forever. Eliminates frost build-up altogether! Separate freezer is placed at a sensible level—no awkward bending to get at glide-out shelf and basket.

Alfol . . . the *original* multiple-layer aluminum foil insulation! This blanket of "silver-lining" weather-protects walls, ceilings, floors—a veritable vapor barrier against damaging condensation. Reflects summer heat out, winter heat in—great for people-comfort!

Norge Dispensomat automatic washer . . . with uncanny, computer-like ability to dispense detergent, conditioner, softener and bleach at exactly the right time of wash or rinse cycle. Its "twin": the matching Norge Four-Way dryer.



PRODUCTS FOR THE HOME

Borg-Warner bathroom fixtures . . . with unequalled record of new ideas! Bathtubs? Traditional designs plus smart, new "sunken" and raised-bottom tubs. Lavatories? Dozens of styles with new countertops among them. Toilets? Many innovations, including first home wall-hung units to save work and space. Magnificent colors—and Borg-Warner builds the best in brass fittings, too.

KoolShade . . . the *original* solar screening! Woven bronze louvers intercept sun's rays outside of windows, keep interiors up to 15° cooler. Light, air and view come through in full glory. Among biggest booster-users of KoolShade, now in eight colors: architects.

Norge, York, Borg-Warner, B-W, Alfal, KoolShade and Dispensomat are brand names of Borg-Warner Corporation.

This is the Borg-Warner family of home products—gathered together so you can meet them in a single setting.

As products of divisions and subsidiaries of Borg-Warner Corporation, all descend from a long and proud tradition of engineering excellence and strict adherence to quality. Be it resolved that B-W progeny of the future will carry on this tradition. *Borg-Warner Corporation, 200 South Michigan Avenue, Chicago 4, Illinois.*

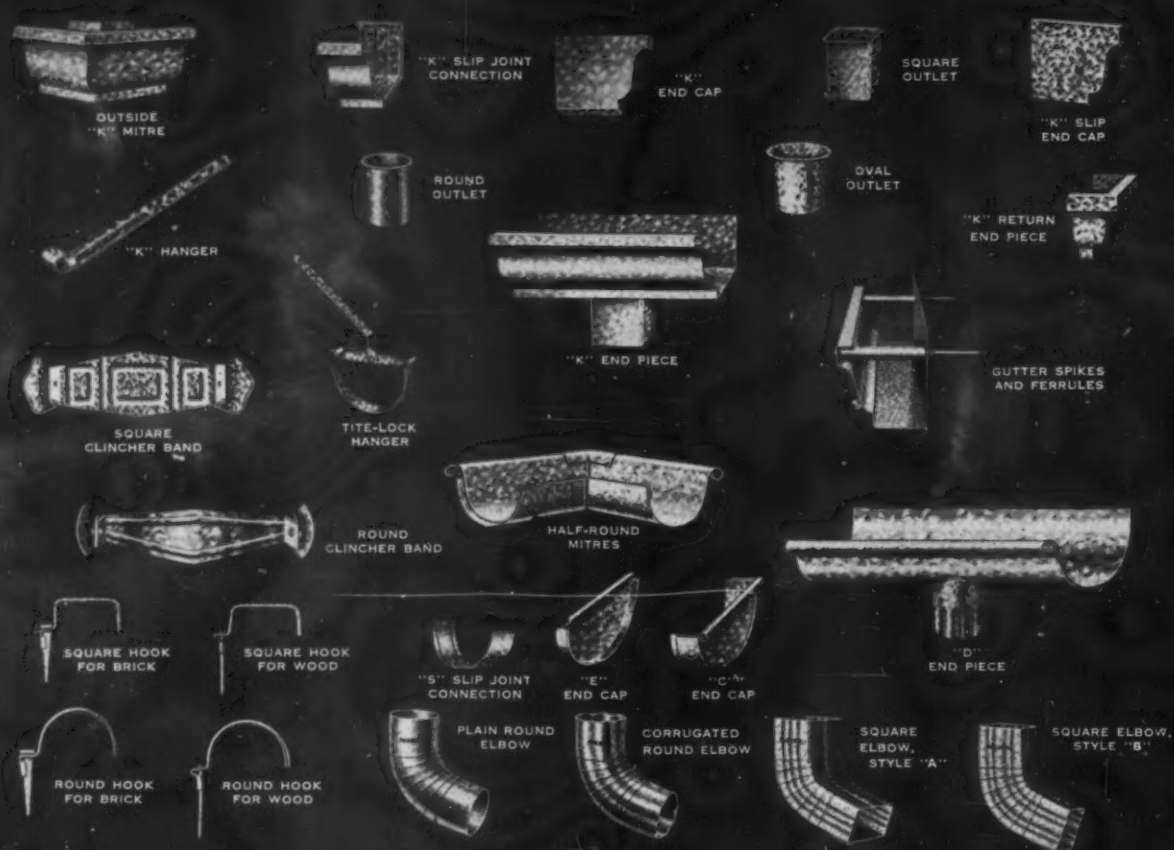


Divisions and subsidiary companies of Borg-Warner contribute vitally to seven areas of activity, as symbolized by the 7 Hats of Borg-Warner. They are: (top) national defense; oil, steel and chemicals; (middle row) agriculture; industrial machinery; aviation; (bottom) automotive industry; home equipment.



BORG-WARNER®

Better products through creative research and engineering



Save costs on your gutter jobs ...using the complete MILCOR line

Simplify your buying...stocking...record-keeping and installation by filling all your needs with one dependable brand.

Whatever you want in gutter and accessories, there's a Milcor product that fills the bill. Each piece is precision-made for easy fit and fast installation. You can get everything the job requires from one source — save valuable time by reducing paperwork and bookkeeping — save man-hours on receiving and stocking, too.

Go Milcor all the way on all your roof drainage jobs. Call your jobber for prices, or write the nearest branch listed below.

Milcor Pre-flanged Highback Gutter cuts your job costs 3 ways!

1. Eliminates flashing.
2. Eliminates a brake operation.
3. Enables you to finish jobs faster.

4" and 5" sizes; 10- 20-, 25-, 30-, and 32-ft. lengths; 28- and 26-ga. Ti-Co galvanized steel.



You can stake your reputation on a Milcor installation!

Member of the  Steel Family

MILCOR[®]

Inland Steel Products Company

DEPT. E-4023 W. BURNHAM ST., MILWAUKEE 1, WISCONSIN • BALTIMORE, BUFFALO, CHICAGO, CINCINNATI, CLEVELAND, DETROIT, KANSAS CITY, LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS

SM-14

WHAT'S HAPPENING . . .

H. E. Anderson, SMACNA President

LOS ANGELES — Delegates to the Sheet Metal and Air Conditioning Contractors' National Association's annual convention elected Harvey E. Anderson, Anderson and Litwack Co., Chicago, president; L. B. McConnell, McConnell Sheet Metal Works, Inc., Lansing, Mich., vice president; Dion E. Mannen, Mannen and Roth Co., Cleveland, treasurer; and Joseph D. Wilder, executive secretary.

Five new directors were elected for four year terms. These are:

L. W. Zahner, A. Zahner & Co., Kansas City, Mo.; J. Pope, Lydick Roofing Co., Albuquerque; R. J. Blum Jr., Kirk & Blum Mfg. Co., Cincinnati; John F. Creegan, John F. Creegan Co., Hawthorne, N.J.; and C. H. Johnson, Johnson Sheet Metal Wks., E. Moline, Ill.

Directors with one year to serve are: G. G. Dorsett, Keetch Metal Works, Dallas; C. Hendry, Lundin-Hendry, Inc., Baton Rouge; D. E. Shytle, Combustioneer Corp., Washington, D.C.; A. B. Osgood, Day Co., Minneapolis.

Those with two years to serve are: Roy M. Burk, Western Heating & Sheet Metal, Inc., Olympia, Wash.; Marlowe C. Hodge, Hodge Sheet Metal Products, Los Angeles; Harold Heyse, Heyse Sheet Metal Works, Colorado Springs, Colo.; Andrew Stuart, Anderson Sheet Metal Co., Providence; and Rogers B. Toy, Carrier Corp., Atlanta.

Those with terms ending in 1963 are: R. H. Budde, Budde Sheet Metal Works, Inc., Dayton; A. T. Ihde, Alfred Goethel Sheet Metal Works, Inc., Milwaukee; R. A. Hepper, Puhl and Hepper Mfg. Co., Inc., St. Louis; Wm. J. Knecht, Charles H. Knecht & Sons, Camden, N.J.; and W. Hoffman, Buensod-Stacey, Inc., New York.

Chicago Utility Steps Up Heating Promotion

CHICAGO — "After 20 years, the heating industry serving the Chicago area has a bright, new horizon," said Robert Ingeman, domestic sales manager, Peoples Gas Light and Coke Co., in announcing the company's new heating sales campaign. Mr. Ingeman pointed out that Chicago's heavy building program, coupled with the limited availability of natural gas pipe lines and storage facilities to serve this area, had resulted in a limited release of permits to both residential and commercial as well as industrial customers in the past.

"We are now prepared to issue gas heating permits right away," he told 450 dealer-contractors, mechanical contractors, builders, wholesalers, architects and other invited guests at a kick-off dinner.

Will Help Dealers Plan Ads

Plans to promote gas heating will be based upon ads in the four Chicago daily papers and 100 neighborhood publications. Sixty-six sales promotion engineers will be available to assist dealer-contractors and others to conduct their own sales promotion programs.

Promotion Kit Available

To assist dealer-contractors and mechanical engineers with sales promotion programs, the company has prepared a kit containing sales guides, ad mats, window banners, showroom posters, direct mail pieces and comparative cost sheets.

Special attention has been given to selling the new supply of natural gas to large users of fuel where rated input exceeds 400,

000 Btuh. Engineers trained to serve these customers' needs are available to assist consulting engineers, architects and mechanical engineers.

In addition to providing sales promotion kits and engineering services, the company has opened a display area in its main office where the general public may obtain information about furnaces, air conditioners, air distribution systems and controls.

Study Modulated Heating Input At Urbana

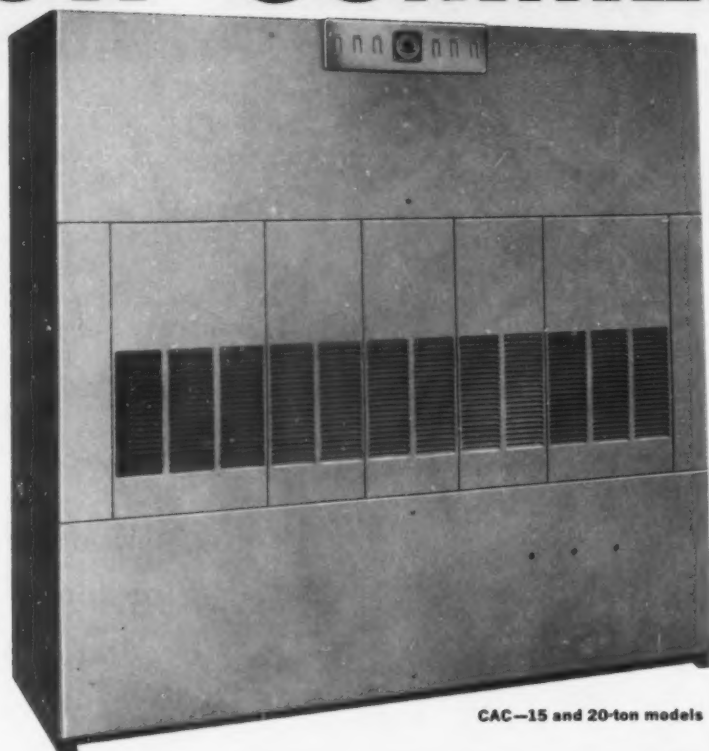
CLEVELAND — An investigation of modulated input heating is now being conducted by the National Warm Air Heating and Air Conditioning Association at its research residence in Urbana, Ill. Performance of the following equipment is being compared in the study: 1) a central gas furnace adjusted for CAC operation and provided with a conventional on-off burner; a gas furnace equipped with a modulating burner control; a central electric furnace with step controlled input; and electric duct heaters controlled from individual room thermostats.

The heating equipment has been installed in such a way that one blower can circulate the air through any of the heating units. Approximately 15 minutes are required to change from any one system to any of the others. An electric water heater allows the chimney to be sealed at times when the electric units are in use.

Energy input to any of the sys-

(Continued on page 26)

NOW-COMMERCIAL



CAC-15 and 20-ton models

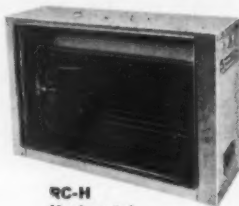
NEW!

CAC Units (Water or Air Cooled)—These units are designed for use in restaurants, supermarkets, offices, factories, churches, larger homes, etc. They are available in both packaged and split-system types. The cabinets of the units are compact (see size table, right) and the units are easy to install. They are available in 3-, 5, 7½, 10, 15 and 20-ton cooling capacities. The 3, 5 and 7½-ton units are equipped with a single compressor, the 10-ton units with a single compressor or double compressors, and the 15 and 20-ton units each have two compressors. Optional plenums are available that have four-way adjustable grills. All

SPLIT SYSTEM AIR CONDITIONER



RC-B
Horizontal with Universal Blower
22,000 to 82,000 BTUH



RC-H
Horizontal
21,600 to 56,000 BTUH



RC-V
Vertical
22,000 to 55,000 BTUH

EVAPORATORS

The RC-B evaporator, with its universal blower, can be mounted with its own ductwork or used where a furnace has insufficient blower capacity. The three other "add-on" evaporators shown here offer complete versatility of installation to a dealer.



RC-C
Counterflow
21,000 to 46,000 BTUH

CONDENSING UNIT



AC-B
2, 3, 4, 5 & 7-ton cooling capacity

THE COMPLETE LINE IS

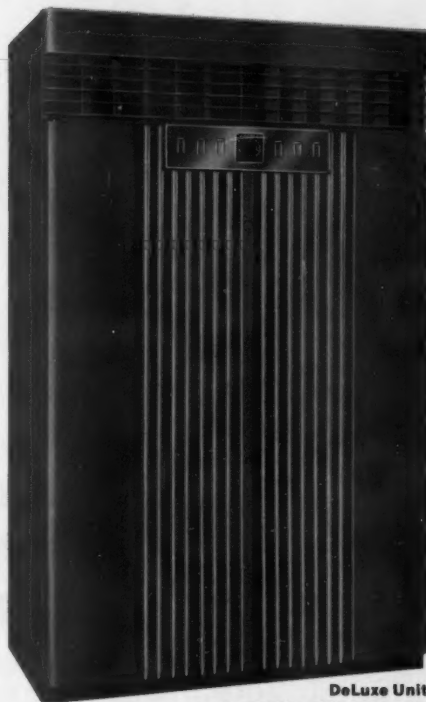
OR RESIDENTIAL-

NEW! ➔

air-cooled models can be used on low ambient applications. The economy version of the 3, 5, 7½ and 10-ton units costs the dealer approximately 5% less, so he's ready to meet competition where price is the deciding factor. The mechanism is the same as the deluxe model, but the unit has a simpler grill.

*Available only in water-cooled type.

	3	5	7½	10	15	20
H	85%	85%	87%	83%	80	80
W	42	42	50	66	84	108
D	24	24	30	30	31¼	31¼



DeLuxe Unit—
3, 5, 7½ and 10-ton models



Economy Unit—
3, 5, 7½ and 10-ton models



AC-BR
Outside Unit
3 & 5-ton

SPLIT SYSTEM



RC-BR
Inside Unit
with Universal Blower

SELF- CONTAINED PACKAGED UNIT

The ACP is a complete, self-contained air conditioner with high-capacity blower. It is designed for installation in attic, breezeway, utility room, basement, crawl space, through-the-wall or outdoors. 2, 3, 4 and 5-ton cooling capacity.



ACP



HEAT PUMPS

PACKAGED UNIT

ACPR 2, 3, 4 & 5-ton

Get the data sheets and price lists on these units today—your American-Standard Air Conditioning Division Distributor has them. This distributor is a specialist—selected because of his experience, dependability and outstanding service facilities. He always maintains an adequate inventory of products for your needs, and he will deliver promptly. Call him today.

American-Standard and Standard® are trademarks of American Radiator & Standard Sanitary Corporation



AMERICAN-Standard
AIR CONDITIONING DIVISION

AMERICAN-STANDARD!

WHAT'S HAPPENING...

(Continued from page 23)

FHA to Modify Requirements for Listing, Labeling Cooling Equipment

CLEVELAND — Requirements pertaining to the listing and labeling of unitary air conditioning equipment as set forth in General Revision No. 3 to the Federal Housing Administration's "Minimum Property Standards for One and Two Living Units" will soon be modified, according to the National Warm Air Heating and Air Conditioning Association.

The section of the Minimum Property Standards relating to the refrigeration system of summer air conditioning was revised in December 1960 to include the following:

"Refrigeration systems and components shall comply with American Standard Safety Code for Mechanical Refrigeration, ASA B9.1 and the applicable Standard of the Air Conditioning & Refrigeration Institute.

"Unitary Air Conditioning Equipment (not including room air conditioners or heat pumps) shall be listed in the ARI Direc-

tory and display the ARI symbol of certification."

Alternatives Offered

According to NWAHACA, FHA has indicated that it plans to notify FHA insuring offices by letter that unitary air conditioners (not including room air conditioners or heat pumps) are acceptable without ARI labeling or listing if the manufacturers are able to show evidence of compliance with the appropriate ARI or AGA Standards.

Heating Changes

General Revision No. 3 also includes several changes in heating requirements. The section on forced warm air systems now includes the following provisions: *Forced Circulation Warm Air Systems (1003-14.3)*

"Design and installation shall be in accordance with the ASHRAE Guide or applicable Manual of the National Warm Air Heating and Air Conditioning Association except as otherwise provided herein.

Perimeter Systems in or Under Concrete Floors (1003-14.4)

"a. Heating ducts shall be completely encased in not less than 2 in. of concrete except when the duct is of concrete pipe, ceramic tile, or asbestos-cement. All ducts embedded in slabs shall have a minimum of 2½ in. of concrete above the duct.

"b. When the bottom of ductwork adjacent to the perimeter of the slab is at or above exterior finish grade, ducts and fittings may be of any suitable, noncom-

(Continued on page 30)

Modulated Heating Input Studied

(Continued from page 23)

tems can be determined from meters installed in the electric and gas lines. Indicating and recording meters permit determination of the exact energy input to the house, which in turn will allow a precise determination of its heat loss. Thus the measured and calculated values of heat loss may be compared under a variety of outdoor wind and temperature conditions.

OHI, NFC Complete Merger

NEW YORK CITY — Merger of the Oil-Heat Institute of America and the National Fueloil Council has been completed, and the two organizations will now operate under the name of the National Oil Fuel Institute.

Officers of the new organization are: Glenn L. Werly, president; Charles H. Burkhardt, managing director of the marketing-distribution and equipment-technical divisions and also vice president of the institute; Frederick S. Burroughs, managing director of the promotion-communications division and also secretary of the institute; and Ralph Hartell, communications director for all divisions.

According to Mr. Werly, the new organization "envisioned the continuation and expansion of all constructive and effective activities of both OHI and NFC." Mr. Werly pointed out that the bylaws of the new organization include provision for a research division.

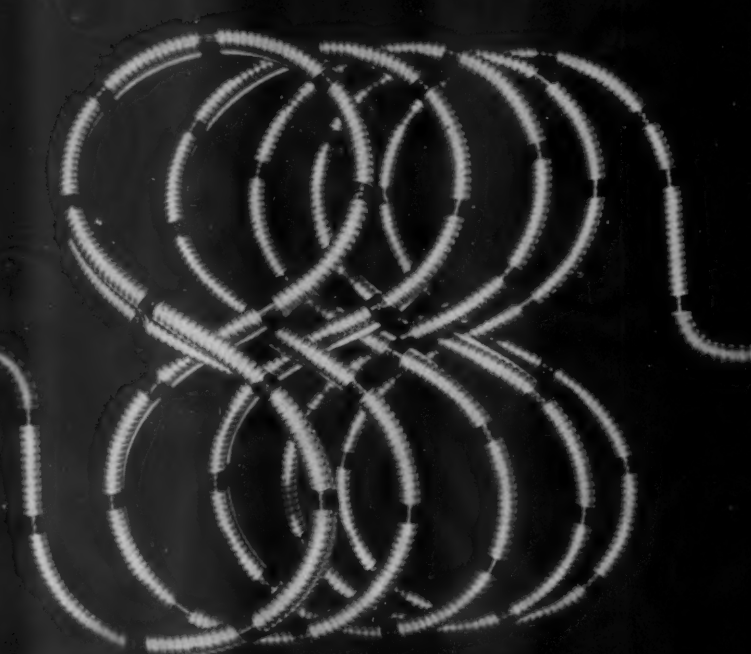
(More news on page 30)

Report Builders Using More Stainless Steel

NEW YORK CITY — The steadily expanding construction market for stainless steel continued strong last year, according to the Committee of Stainless Steel Producers. Shipments to the building industry from mills and steel service centers were up 30 percent over 1959. Shipments to fabricators of household products showed an increase of 8 percent over 1959, according to the committee.

SHORTEST

DISTANCE



BETWEEN ANY AIR CONDITIONING JOB...AND A PROFIT

(IF THIS CONTRADICTS WHAT YOU LEARNED IN SCHOOL ABOUT STRAIGHT LINES AND SHORT DISTANCES, BLAME IT ON TODAY'S BIG REVOLUTION IN CENTRAL AIR CONDITIONING TECHNOLOGY)



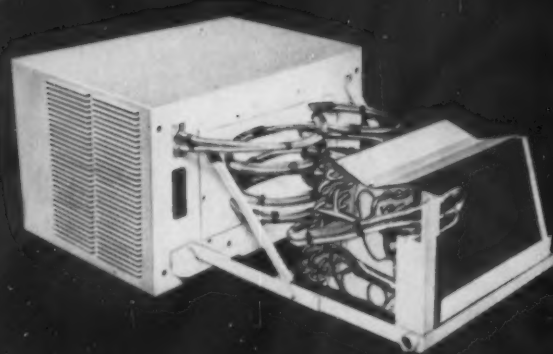
You're looking at a length of Fedders' flexible hermetic tubing. Nearly 40 miles of it is now installed in homes and commercial buildings throughout the U. S. Not one case of failure has been reported to date. This combination of high-grade copper and spiral steel armor is far stronger, far more leak-proof and kink-proof than any hermetic line you could install yourself.

What you don't see in this picture is the FlexHermetic outdoor condenser section and indoor cooling coil connected to the ends of this flexible tubing—*right in the Fedders factory*. This means, of course, that FlexHermetic Unified Remote Air Conditioners come to you complete—evacuated...dehydrated...sealed...charged...and fully tested—all ready to place in position. It means that most of the work—and all of the guesswork—has been taken out of central air conditioning. *It means that installation days and dollars are slashed by up to 90%.*

Hundreds of air conditioning/heating contractors and installers have discovered that this revolutionary Fedders technology has vastly expanded their market for air conditioning...has increased the number of jobs they sell...has paid them a greater profit on every job.

Turn the page and see on how many central cooling jobs the world's first and only unified remote air conditioner can pay you an extra profit.



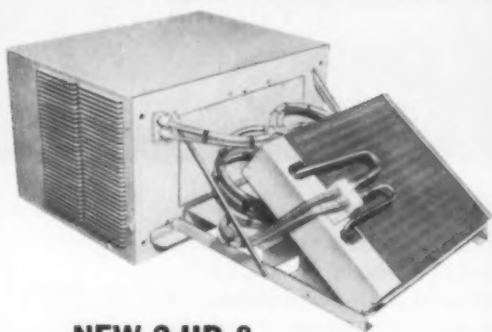


SHIPPED LIKE THIS



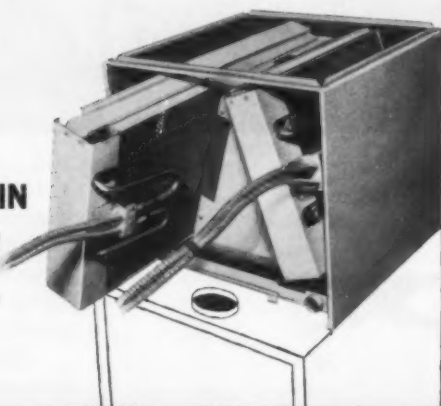
**OPENS UP INTO A COMPLETE
REMOTE SYSTEM IN MINUTES**

FEDDERS' NEW TECHNOLOGY HAS ...NOW IT MAKES MORE PROFIT



**NEW 2-HP &
3-HP "H" COIL MODELS**

**...CAN BE
INSTALLED
IN TANDEM IN
4-HP & 6-HP
SYSTEMS...**



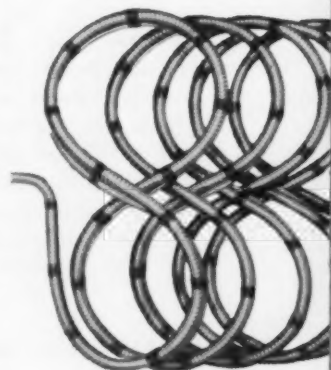
The technology that has caused a sales explosion in residential air conditioning can now solve sales problems for you on other jobs. New 2-HP and 3-HP FlexHermetics with flat evaporators and matching accessories bring this same speed and economy to a wide range of applications.


The competitive advantage which FlexHermetic Air Conditioners and FlexAire Furnaces confer in average-size homes can now be enjoyed in larger houses and in homes with hydronic heating. In addition, these new models open

up a whole new market in commercial and industrial air conditioning.

The FlexHermetic with matching blower cabinet and discharge plenum is ideal for smaller retail stores, offices and laboratories. And because the FlexHermetic outdoor condenser can be mounted on exterior walls in a special steel frame as well as on roofs and slabs, multiple installations in the largest commercial structures are practical and economical.

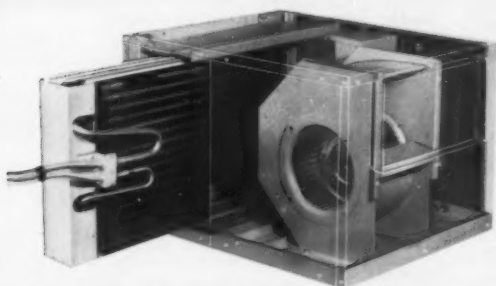
To learn more about the FlexHermetic, mail the coupon today.



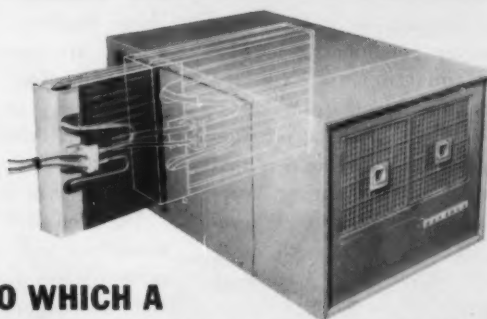


**SLASHES
INSTALLATION
TIME AND COST
BY UP TO 90%!**

REVOLUTIONIZED AIR CONDITIONING FOR YOU ON MANY MORE JOBS!



**OR SLIPPED INTO MATCHING
BLOWER CABINETS...**



**TO WHICH A
DISCHARGE PLENUM MAY BE ADDED
FOR "FREE BLOW" INSTALLATIONS**

F·L·E·X·H·E·R·M·E·T·I·C

UNIFIED REMOTE CENTRAL SYSTEM BY

FEDDERS

**SHORTEST DISTANCE TO
AIR CONDITIONING PROFIT**

FEDDERS CORPORATION, Dept. AA
MASPETH 78, NEW YORK

Please rush information on Fedders
FlexHermetic Unified Remote Air Con-
ditioners ☐ FlexAire Furnaces ☐.

NAME _____

ADDRESS _____

FIRM _____

CITY _____ STATE _____

WHAT'S HAPPENING . . .

(Continued from page 26)

See Rise in GNP To \$940 Billion

NEW YORK CITY — New products and new power sources will enable the United States to increase its gross national product to \$940 billion a year by 1965, according to McGraw-Hill economists. In a recent long range forecast, the publishing company's economists said manufacturing capacity will grow by 85 percent by 1975, electric power output by 300 percent, and the volume of all freight cargo by 90 percent.

FHA Revision Involves Changes In Heating, Cooling Requirements

(Continued from page 26)

bustible material not subject to deterioration in the presence of moisture. Duct materials complying with FHA 'Criteria and Test Procedure for Combustible Materials Used for Warm Air Ducts Encased in Concrete Slab Floors,' dated April 16, 1956, may be used except within two duct diameters of the supply plenum. Joints may be made by taping,

grouting, or other similar means.

"c. When the bottom of ductwork adjacent to the perimeter of the slab is below exterior, finish grade, ducts, fittings, or any other part of the duct system which is wholly or partly below exterior grade shall be of ceramic tile or asbestos-cement. Any joints in the duct system which are wholly or partly below exterior grade shall be watertight. Taped or cement grouted joints are not considered watertight.

Use of Underfloor Space as a Plenum (1003-14.5)

"a. General

"1. Underfloor spaces not exceeding 24 in. in height to the bottom of floor joists may be used as a supply or return plenum in single story structures, or single-story portion of multilevel structures.

"2. Fuel burning devices shall not be installed in a plenum and all material enclosing the underfloor space, including any perimeter wall insulation, shall have a flame spread classification not exceeding 200.

"3. The construction enclosing an underfloor plenum shall be sealed against air leakage and the ground surface shall be covered with a vapor barrier material complying with 713-5 having joints lapped at least 2 in. and not sealed. Ground cover material having a flame spread classification of over 200 may be used, provided it is covered with at least 2 in. of sand or similar noncombustible material.

"4. A noncombustible receptacle shall be provided under each floor type opening into the ple-

(Continued on page 34)

ARI Launches Program to Promote Air Conditioning of New Homes

WASHINGTON, D.C. — A test marketing program to promote the use of air conditioning in new home construction will be launched this month in Wilmington, Del. Purpose of the program is to prove to home builders that residential air conditioning, properly used and aggressively promoted, is a new and highly effective tool for increasing the sale of new houses.

The "Wilmington Residential Project" will be conducted under the auspices of the Air Conditioning and Refrigeration Institute. The program was developed by eight manufacturer members of ARI in cooperation with House and Home magazine. The manufacturers are: Carrier Air Conditioning Co.; Airtemp Div., Chrysler Corp.; General Electric Co.; Lennox Industries Inc.; Westinghouse Electric Corp.; York Div., Borg-Warner Corp.; Minneapolis-Honeywell Regulator Co.; and E. I. du Pont de Nemours & Co., Inc.

The Delaware Power and Light

Co., Delaware Association of Home Builders, and other local groups are participating in the test promotion. Builders taking part in the program will air condition their model homes and sell new homes equipped with air conditioning on a non-optional basis.

The promotion will make use of newspaper and radio advertising, press releases and photos, a special Wilmington residential survey, posters, pamphlets, site signs, etc. Builders' salesmen will be given special training in home selling techniques with emphasis on the advantages of central air conditioning.

A slogan, "The Crowning Touch — Year 'Round, Whole Home Air Conditioning," and a stylized yellow crown have been adopted as identifying symbols and will be used in all promotional activities relating to the program.

Results of the test will be made available to members of ARI and are expected to form the basis for similar programs in other areas.



Century motors circulate warm air

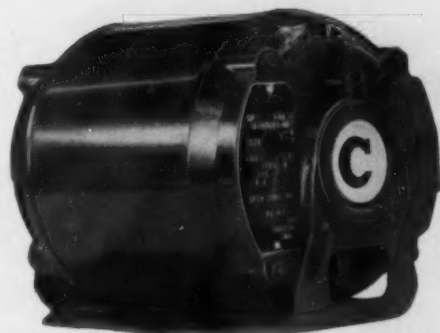
Century motors are helping circulate warm air in hundreds of thousands of domestic furnace systems like the one shown here. Why are Century furnace blower motors so popular? The answer is simple . . . quiet and dependable operation. You make fewer nuisance service calls. You make more profit on each job with Century motors.

Here are some of the features that help make this record possible:

FOR DEPENDABILITY: Insulation consists of heavy "Mylar" slot cells and high temperature baking varnish . . . combination gives high mechanical and electrical strength. Lubricating method is designed to withstand warm air furnace operating conditions. And other features like the trouble-free governor and automatic thermal overload protection increase dependability.

FOR QUIET OPERATION: A cushion base with resilient rings reduces transmission of sound vibrations . . . dynamically balanced rotor gives smooth operation . . . sleeve bearings with shaft floating on film of oil means belt can be pulled up without bearing rumble . . . all contribute to quiet operation of Century furnace blower motors.

FOR MORE INFORMATION: contact your nearest Century Electric Sales Office or Authorized Distributor.



Century Electric 48-frame cushion base motor for furnace blowers. Also available: two-speed motors for combination heating-air conditioning units; and 56-frame motors when 1/2-horsepower capacity and larger is required.

CENTURY ELECTRIC COMPANY

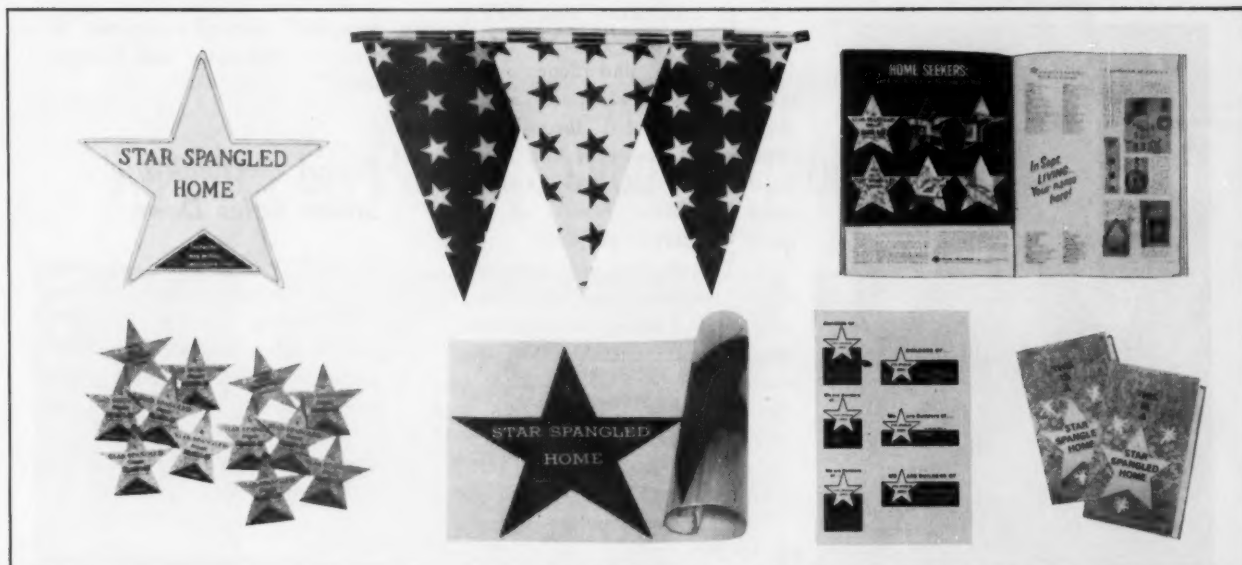
St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
60-8

**MR. SHEET METAL CONTRACTOR...YOU
ARE THE KEY MAN IN**



Now you can offer builders a real home-selling idea...and get that sheet metal contract



Amazing—it's easy—and it costs you absolutely nothing! All you have to do is tell your builder friends about this big Inland STAR SPANGLED HOMES PROMOTION, and it can be the "plus" that gets you the contract. No investment by the builder either. All he has to do is tell you he wants Inland TI-CO and he gets all the sales-stimulating benefits, positively free.

- A set of 30 paper stars, to identify Inland TI-CO in the home, and to tie-in his own "hidden value" features
- Two strings of star-spangled, red, white and blue pennants
- A star-spangled mat for the doorstep
- A mounted and eased preprint of the national advertisement in "Living for Young Homemakers" magazine.
- 6 ad mats to tie his local advertising in with nationally advertised promotion

- 500 star-spangled brochures, with space for his name, to be used as give-aways to prospective home buyers...all Free of charge to you and the builder!

Your presentation folder contains everything you need to tell the story to your builders—helps get the sheet metal contract. It means more business for you because only contractors who supply Inland TI-CO galvanized steel can offer the free promotion kit to builders

Here's how it works:

1. Inland provides you with a Presentation Folder to help you tell your story to builders.
2. You furnish the builder with a complete Star-Spangled Homes Promotion Kit at no cost to him. Inland Steel Company provides the Kits—they cost you nothing.
3. You get the sheet metal contract and use INLAND TI-CO Galvanized Steel in the ductwork and on gutters and downspouts—finest galvanized steel on the market.

The Builder's model home Promotion Kit contains:

- Vacuum-formed "Star-Spangled Homes" star, to hang on the door of the model home

Get complete information quick—mail this coupon today...

INLAND STEEL COMPANY

30 West Monroe Street, Chicago 3, Illinois
Dept. 12



I want to use the STAR SPANGLED HOMES PROMOTION to help me get more Sheet Metal Contracts.

Here is the name of my Steel Service Center or Wholesaler who will provide Presentation Folders for my _____ salesmen:
(quantity)

Their address is _____

_____ City _____ Zone _____ State _____

MY NAME: _____

MY COMPANY NAME: _____

MY ADDRESS: _____

CITY _____ ZONE _____ STATE _____

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EXCEPTIONAL SERVICE
on FINE FASTENERS



Southern Screw is prepared to go to almost any means to guard its reputation for service.

When it takes some extra hustle to meet your delivery requirements, you'll find that Southern is a specialist in service as well as in quality.

If you need fasteners in a hurry, call your Southern distributor, or write Southern Screw Company, P. O. Box 1360, Statesville, North Carolina.

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Manufacturing and Main Stock in
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Warehouses:
New York • Chicago • Dallas • Los Angeles



WHAT'S HAPPENING...

Revise FHA Heating, Cooling Requirements

(Continued from page 30)

num in accordance with NFPA Standard 90 B.

"5. If the underfloor space serves as a crawl space, access shall be provided through an opening not more than 18 x 24 in. fitted with a tight cover and located to discourage use of the space for storage purposes.

"6. Provide two vent openings in the perimeter wall complying with 604-3.2 equipped with tight fitting closures operable from the outside and screened in accordance with 604-2.3.

"7. The perimeter wall shall be insulated in accordance with 714-3.5.

"b. Underfloor Space as Supply Plenum

"Provide at least 4 stub ducts having a minimum length of 6 ft, connected to the furnace plenum, and directed toward supply registers. A clearance of at least 1 in. shall be maintained between ducts and joists, beams, or any combustible construction. Longer ducts may be required to properly direct air toward remote registers. High sidewall outlets may be used in bathrooms and kitchens only."

Report Mechanical Stoker Sales Down

WASHINGTON, D. C. — Factory sales of mechanical stokers during 1960 totaled 13,066 units, 17 percent below the 15,783 units reported for 1959, according to figures released by the Bureau of the Census. Sales of residential and other small stokers amounted to 11,291 units, or 86 percent of the total.

(More news on page 38)

EVEN UP HEAT DOWN AND ALL AROUND



DOWN
AND
ALL
AROUND

The **FIRST** Industrial Furnace
with **HEAT-FIN** radiation
for "living room" comfort
and Maximum Economy

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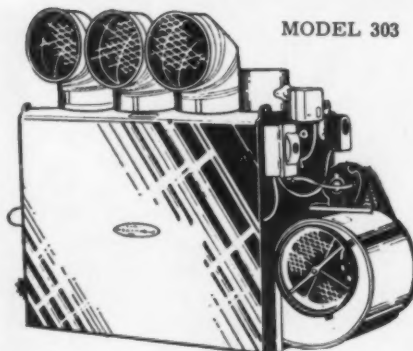
- 250,000 BTU ON OIL OR GAS
- 14" SQUIRREL CAGE TURBO-JET BLOWER
- NO INSTALLATION REQUIRED
- COMPLETE CHANGE OF HEATED AIR EVERY 10 MINUTES
- FULLY AUTOMATIC CONTROLS

Hard-to-heat areas are no problem with this Siebring **INSTANT HEAT** industrial package. Special multiple heat fins convert every drop of fuel into uniform radiant heat. Shipped with three 12" heat stacks, all controls, and ready-to-go the moment it's uncrated. No other unit, priced so low, can do so much!

SUPER HEATMASTER AUTOMATIC OIL FURNACE

150,000 to 350,000 BTU MODELS

MODEL 303



GET THE FACTS . . . WRITE FOR FULL DETAILS & PRICES!

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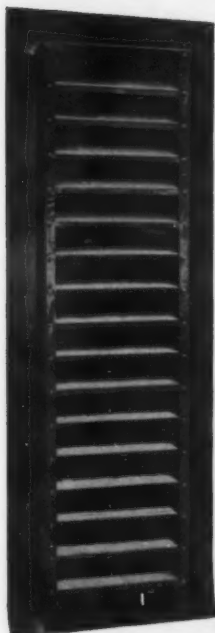
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Corrosion and Vibration caused this...



Resolite CR Panels solved the problem!



Four years of humidity, fumes, fertilizer dust and equipment vibration left this Midwest fertilizer plant in the condition shown at the top right. Resolite engineered and furnished over 24,000 square feet of opaque "Fire-Snuf" formulation CR "Metal Gray" for side walls and roof. The Resolite is a V-beam panel and is manufactured using spe-

cial resins to resist highly corrosive acid conditions. All louver assemblies, flashing and gravity roof ventilators were fabricated by Resolite of the same plastic material. Corrosion-resistant fasteners were also supplied by Resolite.

For complete information send for our new Brochure "Resolite CR Panels."



Resolite Corporation

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Engineering Specialists in Reinforced Polyester Panels



Let's Keep Rolling Ahead

We Americans invented mass production, then we *had* to build mass demand to keep the wheels turning. For this purpose we called upon advertising — the most effective and economical means of creating mass demand. Soon we had more jobs, higher incomes, and better living conditions. And there isn't any limit to how much farther we can go, if we just keep it rolling!

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**FABRICATE YOUR OWN SPIRAL LOCKSEAM TUBING
FOR AIR CONDITIONING AND VENTILATING DUCTS etc.
AND SAVE UP TO 40% IN RAW MATERIAL!**



Diameters up to 32"
Strip thicknesses from .015" to .037"

the **SPIRO 403B**
TUBEFORMING MACHINE

A major new development in the sheet metal industry. The patented SPIRO 403B will enable you to fabricate your own spiral lockseam tubing from any suitable quality strip metal (including galvanized steel) for high and low velocity air conditioning, general ventilation, fume and dust removal, warm air heating and many other applications.

- The 4-ply reinforcing spiral lockseam gives the tube such strength that the thickness of the metal used may be reduced by as much as 50% over comparable conventional ducts.
- The high production speed, the quick changeover for various dimensions and the easy operation of the machine cut labor costs to a minimum and eliminate need for extensive stocking of finished ducts.
- Because of the great strength and rigidity of SPIRO ducts fewer supports are needed thereby reducing installation cost.

The SPIRO 403B is supplied complete with decoiler, cutter, run-off table with discharge mechanism and receiving ramp. This fully automatic machine produces tubes to any length required (up to 20' with standard equipment).

For more information write, wire or phone to **SPIRO U. S. A., INC.**

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Oil Heat Research Group Plans Year's Projects

NEW YORK CITY — Oil heating equipment manufacturers and others interested in fuel combustion research and development met recently to discuss activities to be undertaken under a new research program sponsored by the marketing division of the American Petroleum Institute.

"Our broad objective," said V. A. Bellman, API vice president for marketing, "is to develop new principles and technology, and to pass the information on to equipment manufacturers as a valuable aid in producing less expensive and more efficient oil burning equipment."

T. J. Scott, chairman of the marketing development subcommittee, pointed out that the market for replacement of present oil burners, "which will number nearly nine million over the next 10 years," presents a real opportunity for the manufacturer who develops "dramatic, new oil burning equipment."

J. D. Heldman, Shell Oil Co., told the group that "the steady flow of knowledge resulting from more and more precise and detailed measurements must inevitably result in improved technology and better products."

The program will combine expanded research in oil industry laboratories with new research being initiated by independent research organizations. The following subjects will be studied this year, according to present plans:

1) Effects of Spray Droplet Size on Combustion. The purpose, it was stated, is to determine the optimum droplet size or droplet-size distribution which will result in the most efficient combustion of No. 2 heating oil using an

atomizing type burner. One objective would be the development of atomizing devices capable of producing oil droplets of controlled sizes.

2) New Means for Fuel Atomization. A search will be undertaken for new and unconventional means for atomization.

3) Vaporization of No. 2 Heating Oil. A two-fold objective will be to ascertain and delineate conditions which permit No. 2 fuel oil vaporization without production of deposits, and to demonstrate a practical method of such vaporization which could be utilized by oil burner manufacturers.

4) Air-Fuel Mixing and Recirculation. Researchers will try to determine factors controlling the mixing of air and fuel in the combustion chamber.

5) Ignition System and Air-Oil Systems for Small Burners. New possibilities for ignition systems may be found by investigating unconventional ignition means which might be exploited in small oil burners and by searching for entirely new oil burner ignition means.

Gas Furnace Shipments Up

New York City — Manufacturer shipments of residential gas central heating furnaces in February were 1.5 percent higher than the unit sales reported for the same month of last year, the Gas Appliance Manufacturers Association says. Shipments totaled 60,100 units, compared to 59,200 units shipped in February 1960.

Set Dates for Next AC, Refrigeration Industry Exposition

WASHINGTON, D. C. — Los Angeles will be the site of the next Air-Conditioning and Refrigeration Industry Exposition. Dates scheduled are February 12-15, 1962. Sponsoring organization is the Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N. W., Washington 6, D. C.

Report Shipments Of Aluminum Sheet

NEW YORK CITY — Shipments of aluminum sheet and plate during 1960 totaled 1,356,250,000 lb, according to the Aluminum Association. Shipments of aluminum foil reached a total of 232,214,639 lb.

Atlanta Dealers Hold Silver Shield Meeting

ATLANTA — Warm air heating and air conditioning dealer-contractors of the Greater Atlanta area gathered recently at the new Georgia Power Co. auditorium to hear the Silver Shield story as presented by officials of the National Warm Air Heating and Air Conditioning Association. Cooperating with the national association in the presentation were members of the Atlanta Silver Shield action committee including Laurence F. Kent, Moncrief Furnace Co.; N. B. Estes, Estes Heating & Air Conditioning Co.; John Reid, Home Heating & Air Conditioning; A. M. Ivey, Ivey Heating & Air Conditioning Co.; and William C. Shreve, Randall Bros.

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THE FAMOUS
**McQUAY-
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MANIFOLD
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*SILENT
GAS VALVE)*



ALSO SPRING LOADED, SOFT-SEAT SOLENOID VALVES

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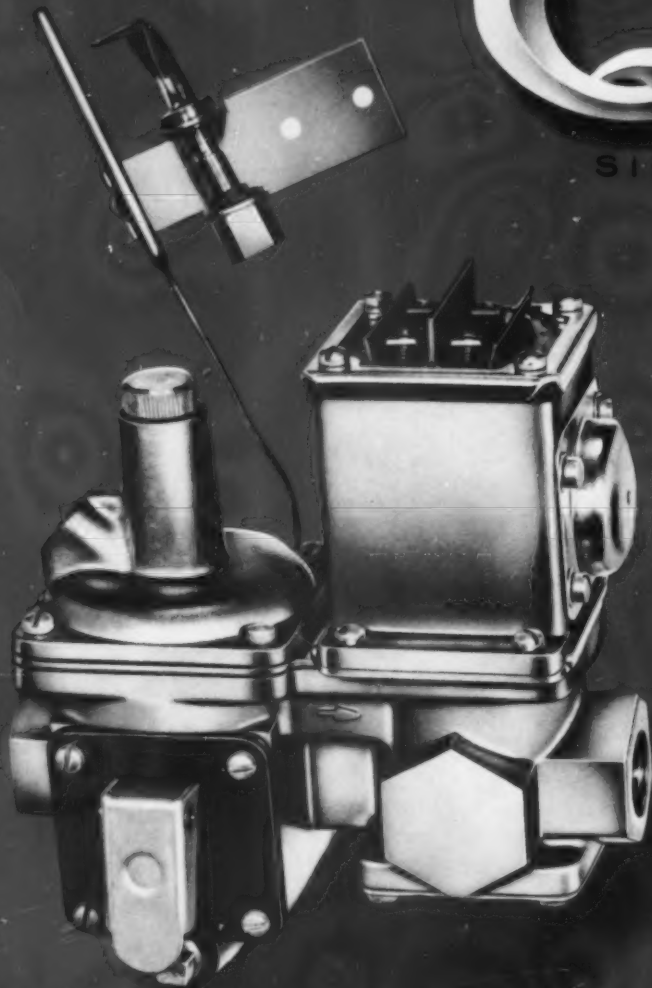
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THE McQUAY-NORRIS COMPLETE MANIFOLD ASSEMBLY
... THE FINEST YOU CAN INSTALL ... INCLUDES THE

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SILENT GAS VALVE



When you've finished a heating job you want to be sure you're not called back time and time again for repairs and service. Rely, then, on the McQuay-Norris gas manifold assembly, for longevity and operating reliability. There's no better manifold assembly available.

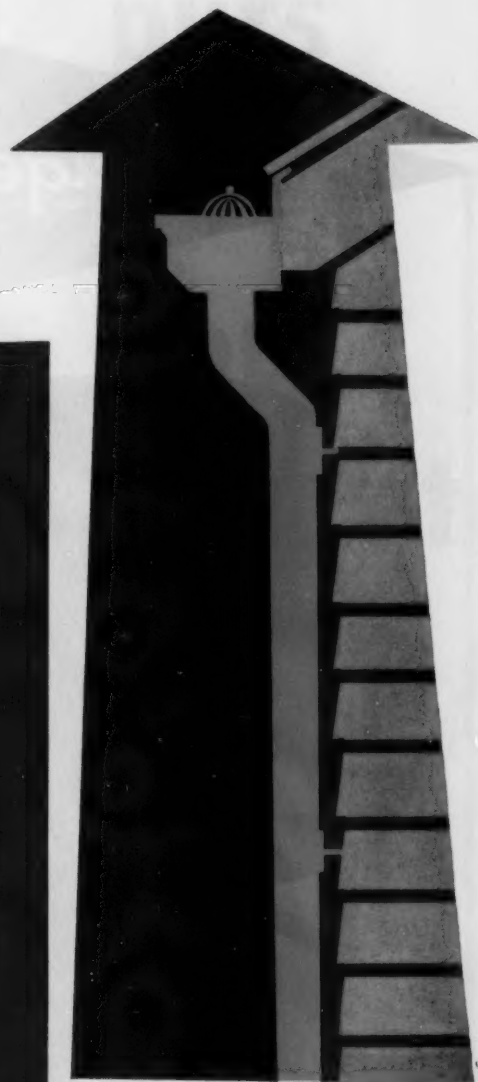
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51 YEARS IN THE MANUFACTURE OF PRECISION PRODUCTS

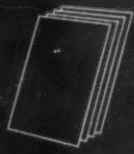
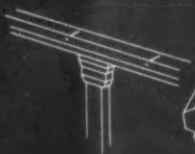
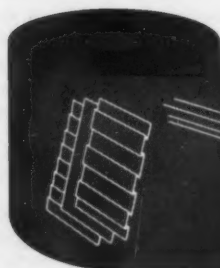
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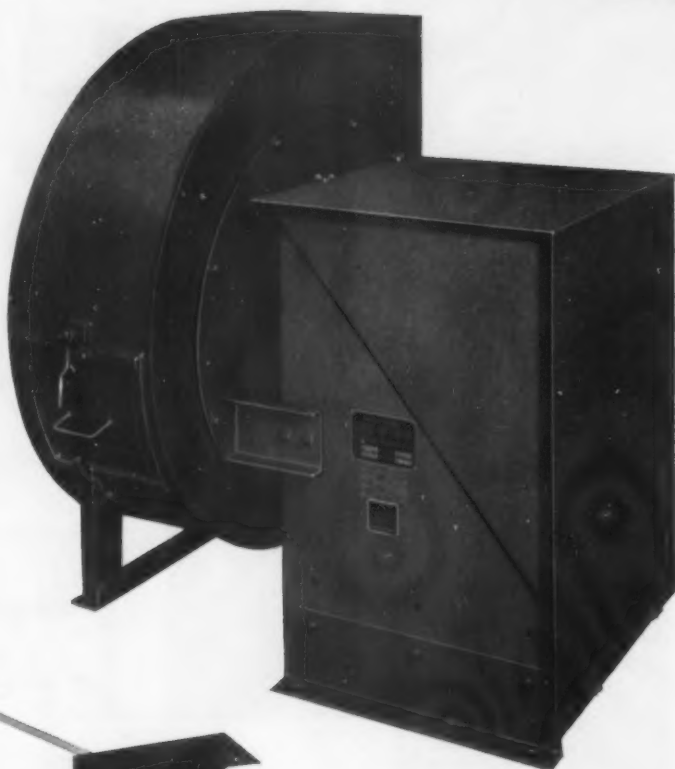
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TO THE STANDARDS
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OF MECHANICAL ENGINEERS

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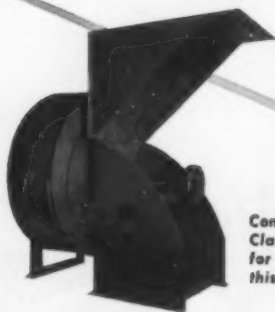


Ready-to-run

NOW the highly regarded Type XL industrial fans have joined the expanding family of Clarage self-contained, packaged units.

Hinged cover completely encloses motor, drive, and bearings for weatherproof installation outdoors or for added safety on indoor applications.

These compact, rugged, economical units are available with either the open type wheel for handling materials or the high efficiency backplate wheel for light dusts and fumes.



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**One "150" Humidifier
With Purchase of Six!**

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BUY

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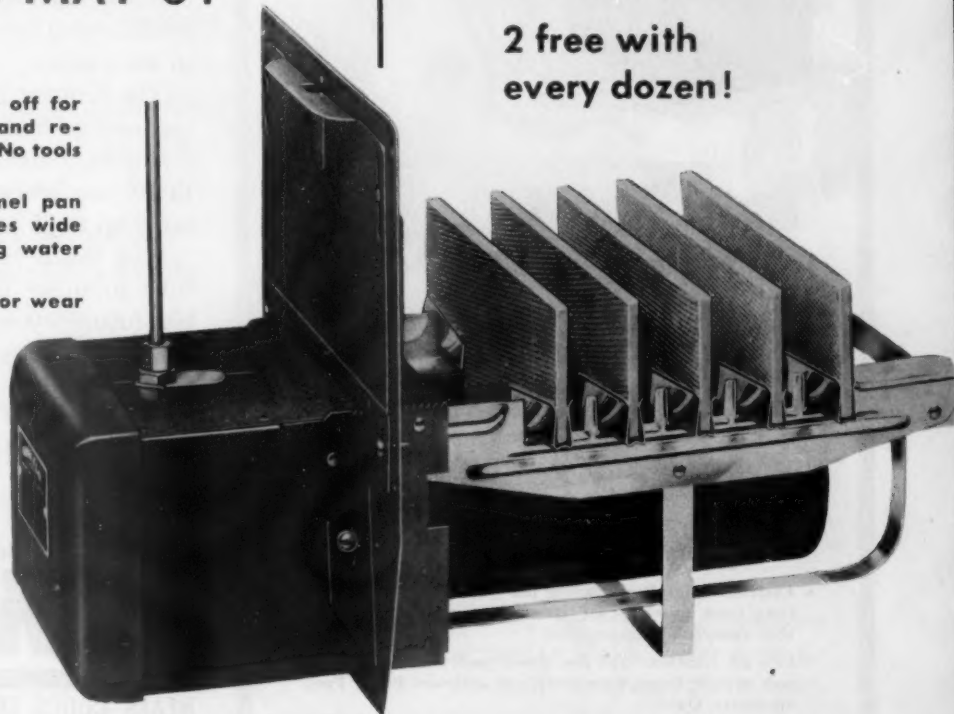
with no strings
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**2 free with
every dozen!**

- New Easy Access faceplate slips off for easiest-of-all cleaning of pan and replacement of evaporator plates. No tools needed.
- Double coated porcelain enamel pan gives years of service. Provides wide range of adjustment to varying water pressures.
- No moving parts to adjust, stick or wear out.
- No float, no drip, and no clog with large size orifice.
- Every part of entire assembly treated against rust and corrosion.
- Humidifier fits all furnaces, every type of bonnet.
- New cut-out template saves as much as 50% of installation time.
- Each unit supplied with saddle valve, tubing and necessary fittings.

CAT. NO. 150 — Auto-Flo Automatic Humidifier with 5 Evaporator plates.

CAT. NO. 150C — "Special 6-Pack" in sealed cartons of 6 units containing one 50-ft. coil of copper tubing. Sold in case lots only.

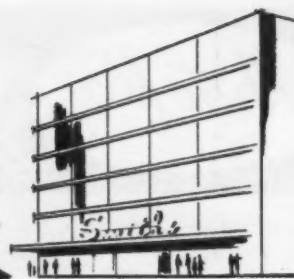


**NEW MIRACLE FIBER GLASS PLATES EVAPORATE UP
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AUTO-FLO CORPORATION • DETROIT 39, MICHIGAN

See how you profit because of the

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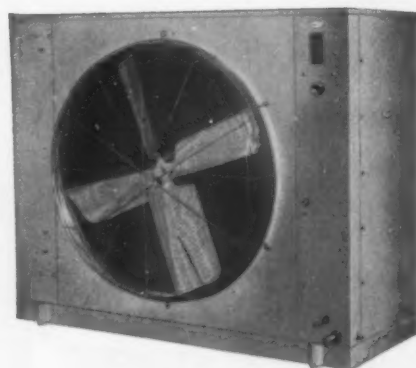
Full line of heating and air conditioning units...
for every type and size installation

EXAMPLE

One Lennox series of air-cooled condensing units (HSA2) comes in 1½, 2, 3, 4, 5, 7, 11, 17 and 25 ton capacities.



2-TON



17-TON

Featuring:

- Extremely high Btuh cooling per watt of power used because these units sub-cool refrigerant as much as 20° lower than condensing temperature.
- Low air resistance and low power costs because of huge coil, straight through air travel and exclusive Power Prop air mover. Quiet.
- Exclusive bonding of fins and tubes gives additional efficiency. Each coil is tested at 400 psi under water. Cabinets are acoustically lined; treated to fight corrosion.

The Lennox dealer is not confined to a short line—and he doesn't have to handle two or three brands in order to get *quality* equipment for all his needs.

What does this mean to you as a dealer? First, it simplifies many of your business problems. It also helps you build a stronger "image" in your community. Even more importantly, it enables you to compete on the bigger heating and air conditioning jobs (with factory field men to assist you).

The Lennox line includes gas, electric, coal and oil heating systems, heat pumps, dual-fuel industrial heaters to 2,000,000 Btuh—and whisper-quiet air conditioning units up to 25 ton size.

So if this is your year of decision—the time to make the big change for your big future—you'll find the profit signs all point to Lennox. Get the complete story—without obligation. Write your nearest Lennox factory or Lennox, 417 S. 12th Ave., Marshalltown, Iowa.

Don't be satisfied with less than

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HEATS, COOLS, TREATS AND MOVES AIR



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**THERMOSTATIC
EXPANSION VALVES
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DISTRIBUTORS**

are the **PERFECT PAIR**
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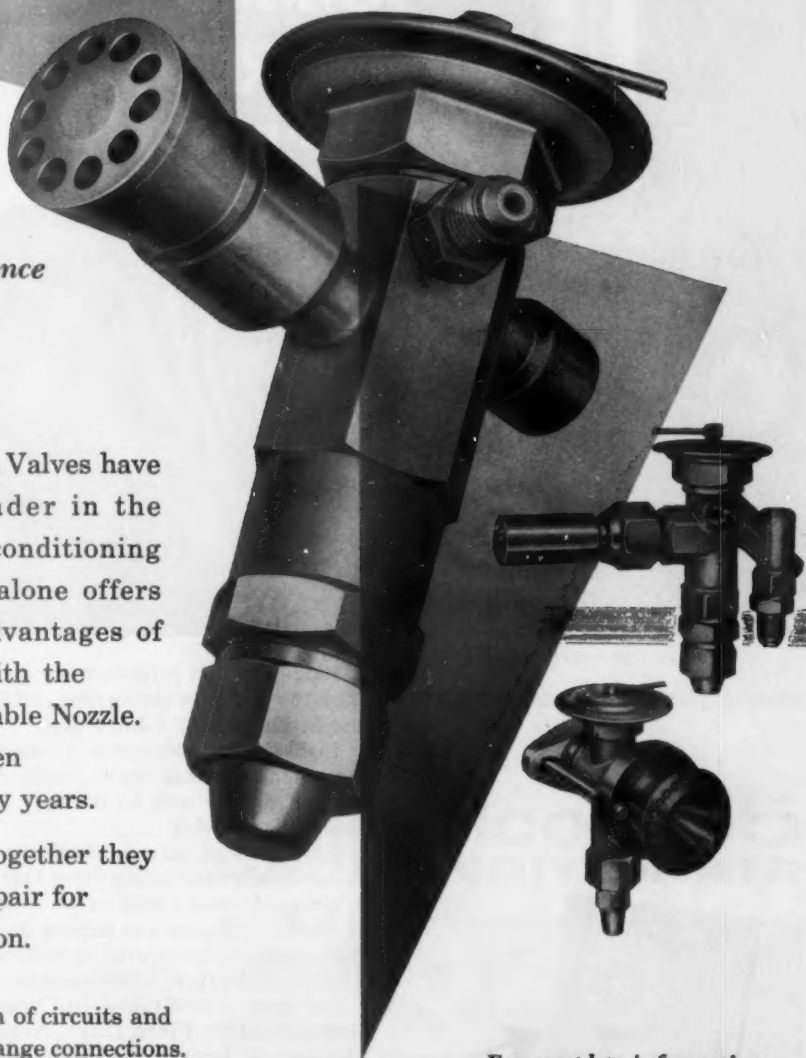
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the distributor with the
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the leader for many years.

No wonder then, that together they
make the perfect pair for
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Available in any combination of circuits and
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Bidding a slab perimeter heating, cooling, or combination system? You can figure on saving time and labor installing ductwork when you use SONOAIRDUCT Fibre Duct!

Lightweight SONOAIRDUCT handles easily, levels and joins quickly. Long lengths mean fewer joints. And, SONOAIRDUCT can be cut to size or mitered with an ordinary hand saw—right at the job. No sharp edges, either!

Easy to install, sure. But that's not the *only* reason why SONOAIRDUCT is America's best selling Fibre Duct—year after year. It's low in cost. It's rugged—won't chip, crack or break when dropped, so every piece is usable. And, you can depend on highest quality. SONOAIRDUCT has been performance-proved in thousands of installations, and meets or exceeds all F. H. A. criteria and test requirements for this type product.

Bid lower—profitably—on your next slab perimeter job with SONOAIRDUCT Fibre Duct. Available in 23 sizes, 2" to 36" I.D., standard 18' lengths or as required.



FREE INSTALLATION MANUAL

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5514



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an outstanding
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THE GM-DELCO KEY DEALER PLAN

With a complete new line of central heating and air conditioning systems, GM-Delco offers you the GM-Delco Key Dealer Plan—designed to help you get more sales in this huge market . . . and get more profits! Here are the principles of this new plan:

- 🔑 **General Motors-Delco name**—assures top flight engineering and a universally known reputation for Reliability.
- 🔑 **Direct Factory-Dealer Distribution**—with planned sales, advertising, training, and promotional aids.
- 🔑 **Limited number of dealers**—in each market, and only they can buy Delco equipment.
- 🔑 **Protected Pricing**—stable Pricing that permits dealer profits.
- 🔑 **Dealer Listings in national ads**—insure direct participation in dynamic advertising, at no cost to you.
- 🔑 **Complete Sales Building Plan**—of local advertising, prospecting, and selling to build sales.
- 🔑 **Over 200 models—plus accessories**—meet all needs.
- 🔑 **General Motors Group Insurance**—available to eligible dealers and their personnel.

GM Delco 365
CONDITIONAIR

There may still be a GM-Delco Franchise open in your area. For full information on the outstanding business opportunities in the GM-Delco Key Dealer Plan, fill out this coupon TODAY and mail to:

Delco Appliance Division, General Motors Corporation
Department 04, Rochester 1, New York

Please give me complete information on your GM-Delco Key Dealer Plan

Name _____

Title _____

Business Name _____

Street _____

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A COMPLETE LINE OF FURNACES, BOILERS, AIR CONDITIONING, HEAT PUMPS AND WATER HEATERS TO MEET ALL YOUR REQUIREMENTS.

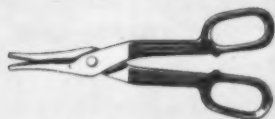


COMBINATION PATTERN
No. U412, 12" only.

SNIPS FOR EVERY SERVICE



HEAVY DUTY PATTERN
No. U416, 16" only.



CIRCULAR CUTTING PATTERN
No. T412, 12" & T47, 7".

STANDARD PATTERN, No. S410
Seven other sizes, 7" to 14".



AVIATION SNIPS, No. V19R
Right Hand, Cuts to left.



AVIATION SNIPS, V19L
Left hand, cuts to right.



NEOPRENE INSULATING SLEEVES
Available for all Aviation Snips. Here shown
on No. V19S, straight cut.

Crescent Tinnerns' Snips are forged of selected steel and blades ground on special grinding machines. They are hardened by Crescent's own selective induction process to insure long, satisfactory service. These easy-cutting, well-balanced snips are made in four patterns; standard, circular cutting, combination and heavy duty.

Sold by hardware dealers and industrial distributors everywhere.

AVIATION SNIPS. Keenly ground, hard, tough alloy steel blades with machine serrations...can be factory reground. Compound leverage produces tremendous shearing power. Three patterns.

CRESCENT TOOLS

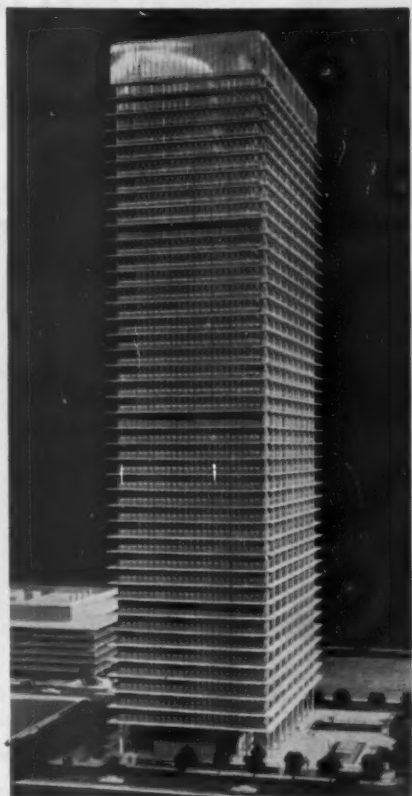
Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

Complete ductwork system of new Humble Oil Building is . . .



GUARDED BY GALVANIZED STEEL

When this handsome Humble Oil office building in Houston, Texas, is finished in 1962, it will be the tallest building west of the Mississippi River. All 44 floors will be served by galvanized steel ductwork. That's 700 tons of skin-tight zinc-coated steel—a combination of tough durability and excellent corrosion protection with the broadest economy east or west of the Mississippi River. Galvanized steel's economy starts with fabrication, continues with erection and installation and is perpetuated in what little maintenance is required after that.

WEIRKOTE® IN PARTICULAR!—That's the choice of Mr. Harold W. Looney, owner of Looney's of Texas, Inc., sheet metal contractor, for all 700 tons of ductwork in this new building. To the inherent strength of steel—to its economy, versatility and advantageously low expansion/contraction rate—Weirkote adds flawless fabrication and long-lasting corrosion protection. Chip-free, crack-free, peel-free Weirkote is manufactured by two National Steel divisions, Weirton Steel and Midwest Steel. Write Weirton Steel Company, Weirton, West Virginia, for further details.



MIDWEST STEEL
Portage, Indiana

WEIRTON STEEL
Weirton, West Virginia



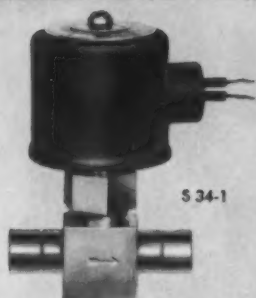
divisions of
NATIONAL STEEL CORPORATION

ALCO

"Power-Packed" Coils

HIGH PRESSURE SOLENOID VALVES

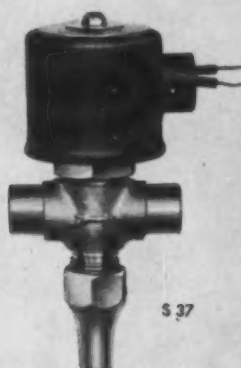
300 LBS. M.O.P.D.
common refrigerants
except ammonia



S 34-1

LINE CONNECTION SIZES

$\frac{3}{8}$ O.D.F. $\frac{1}{2}$ O.D.F.
 $\frac{1}{2}$ O.D.F. $\frac{1}{2}$ S.A.E.
PORT DIAMETER: $\frac{1}{4}$



S 37

LINE CONNECTION SIZES

$\frac{3}{8}$ O.D.M. $\frac{1}{2}$ S.A.E.
 $\frac{1}{2}$ O.D.F. $\frac{1}{2}$ F.P.T.
 $\frac{1}{2}$ S.A.E.*

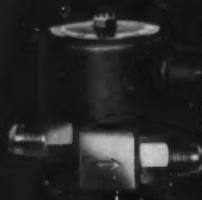
WITH OR WITHOUT MANUAL
ADJUSTMENT STEM

PORT DIAMETER: $\frac{3}{16}$

*Strainer Assembly Included



SHOWS PARTS VIEW
OF S 36-1



DS 2228-4

LINE CONNECTION SIZES

$\frac{3}{8}$ O.D.M. $\frac{3}{8}$ O.D.F.
 $\frac{1}{2}$ O.D.F. $\frac{3}{8}$ S.A.E.
 $\frac{1}{4}$ S.A.E.
PORT DIAMETER: $\frac{1}{32}$



S 36-1

LINE CONNECTION SIZES

$\frac{3}{8}$ O.D.M. $\frac{1}{2}$ O.D.F.
 $\frac{1}{2}$ O.D.F. $\frac{1}{2}$ F.P.T.
 $\frac{3}{8}$ F.P.T.
PORT DIAMETER: $\frac{3}{8}$

- *Alco Manufactured. High Quality Coils are moisture-proof impregnated, cool operating and Power-Packed—*

- *Assuring Maximum Life and Positive Control Performance*

More than **250** ALCO MODELS
OF SOLENOID VALVES for EVERY APPLICATION
LIQUID • SUCTION • HOT GAS • WATER • STEAM • AIR

Call your ALCO WHOLESALER

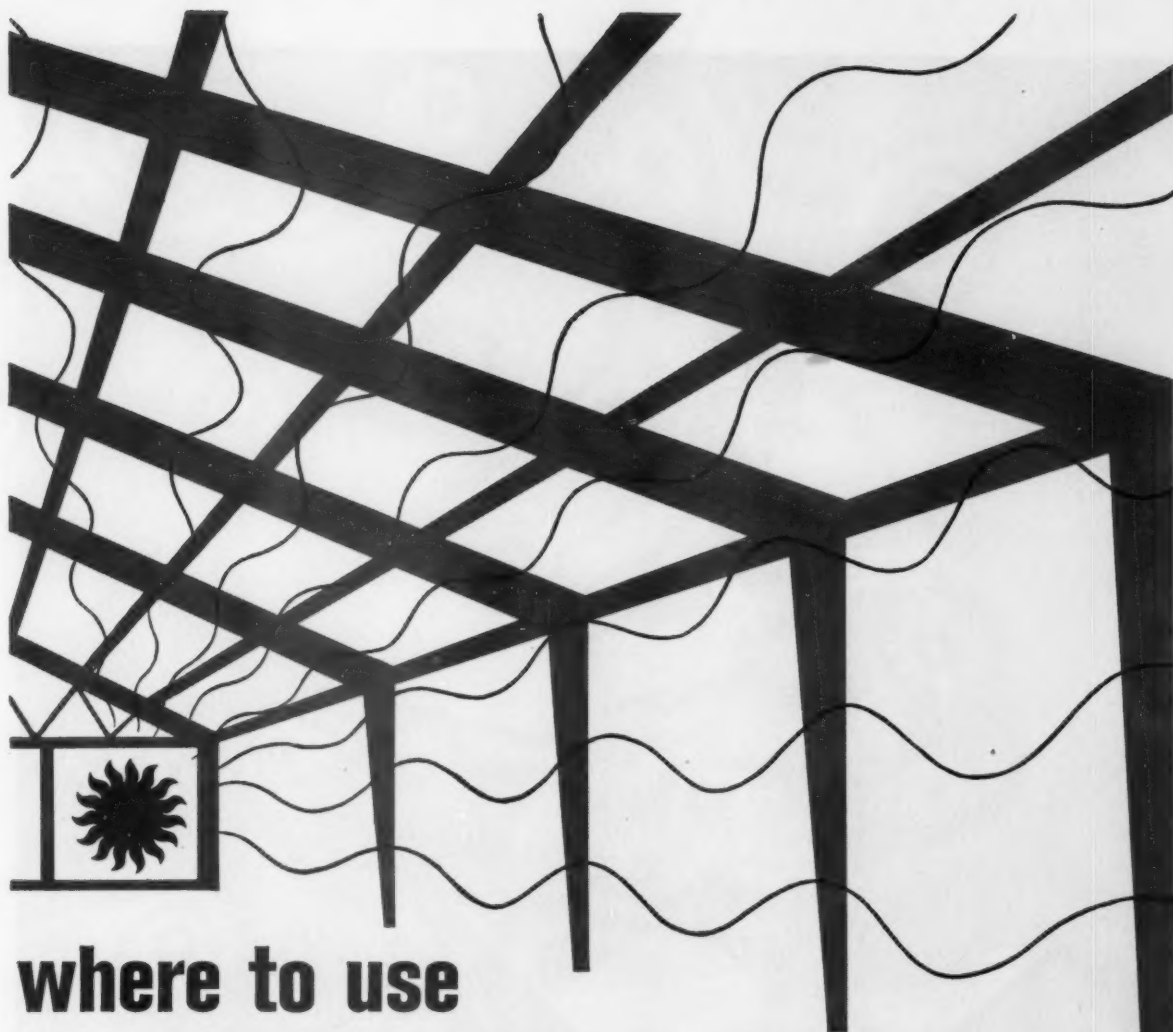


ALCO VALVE CO.

868 Kingsland Ave. • St. Louis 30, Mo.

BUY SECURITY • BUY QUALITY • BUY ALCO

The one complete line of refrigerant controls: Thermostatic Expansion Valves • Refrigerant Distributors • Solenoid Valves
Refrigerant Filter-Driers • Suction Line Regulators • Flooded Evaporator Controls and Reversing Valves



where to use gas-fired heaters in plants



Free from Reznor: Our just published handbook, "Industrial Applications of Direct Gas-Fired Heaters," tells all about the profitable use of Reznor heaters in manufacturing plants.

Use it to find out the many advantages—and economies, too—of using Reznor unit heaters for comfort heating of work or storage areas. For example, you can spot the heaters exactly where heat is needed, without installing long piping runs from a remote central boiler that may already be overloaded. You can use Reznor Aluminized or stainless steel duct furnaces for tempering make-up air

or heating process air. Or use them in year-round heating and cooling systems. (Reznor duct furnaces are A.G.A.-approved for downstream applications.)

Among other subjects covered: How to blanket shipping doors, how to install heaters 40 ft. high to clear crane-ways; how to use Reznor heaters for stand-by operation on liquefied petroleum gas—with city gas as standard fuel.

Published by Reznor, the world's largest manufacturer of gas unit heaters, the handbook is yours free. Mail the coupon—or, call your Reznor distributor or district office, listed in the Yellow Pages under "Heaters—Unit."

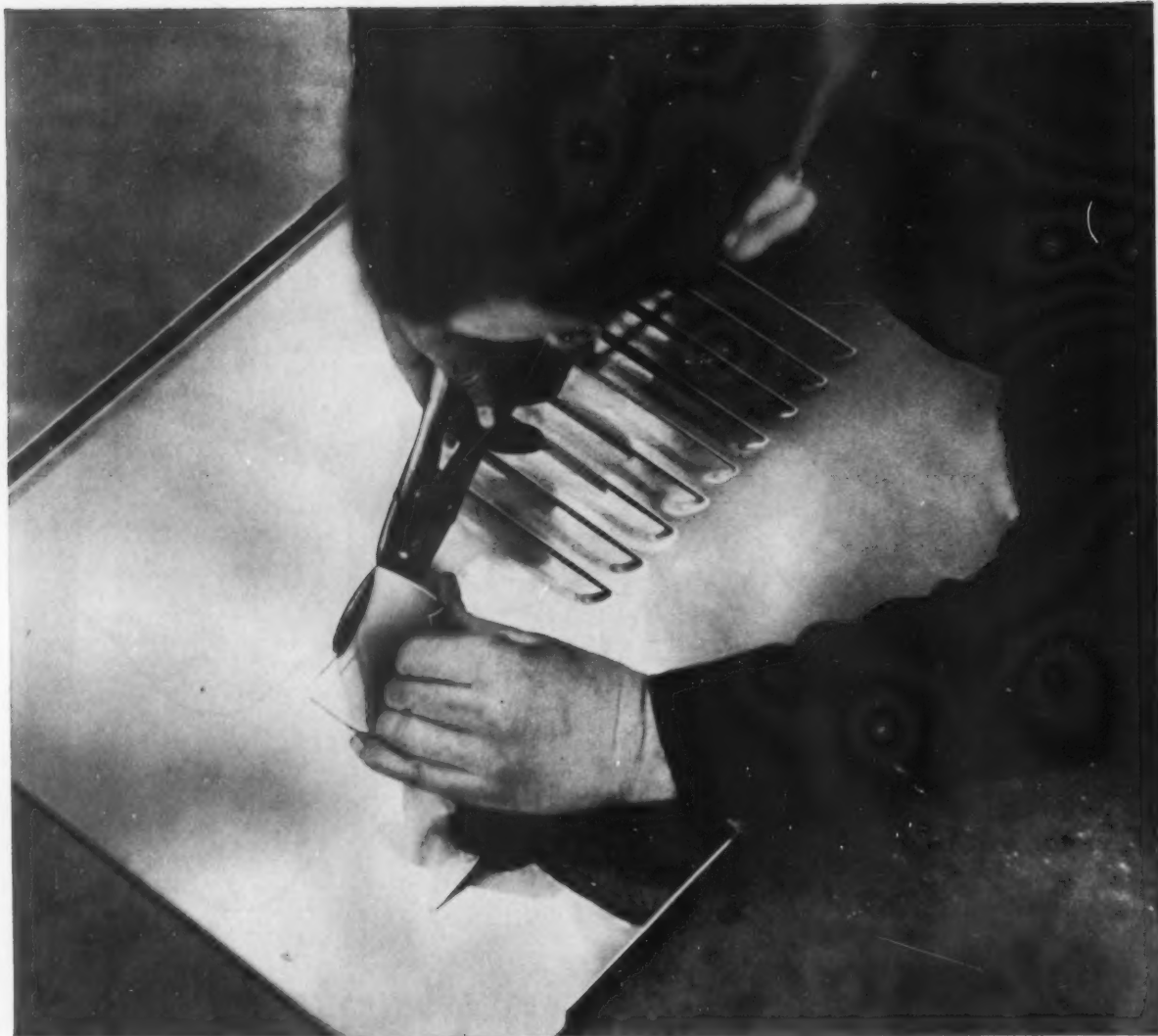


REZNOR HEATERS

REZNOR MANUFACTURING COMPANY
Department AA-5, Mercer, Pennsylvania
Send me a copy of "Industrial Applications of Direct Gas-Fired Heaters."

name _____ title _____
company _____
address _____
city _____ state _____

K-1101

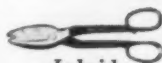


"WE'VE FOUND WISS SNIPS CUT TOUGH STAINLESS STEEL BEST!"

says Mr. Stanley E. Weisman, Pres. Portland Sheet Metal Works Somerville, Mass.

"Ninety percent of our work at Portland is custom built stainless steel equipment for schools, factories and hospitals. For the exacting requirements demanded in such work every one of our 20 sheetmetal workers rely on Wiss Snips for precision hand-cutting jobs. This continual, strenuous work with stainless steel proves to us the reliability and durability of Wiss Snips."

That comprehensive statement by Mr. Weisman leaves little else to say, except, the next time you order specify Wiss Snips.



Inlaid



Metal-Master



Solid-Steel

WISS INLAID BLADE SNIPS cut with lasting sharpness, tremendous power. High carbon crucible steel blades, welded to hot drop-forged frames. Complete range of sizes, 11½" to 17". Models: straight cutting, circular cutting, curved blades, and bulldog notching.

WISS METAL-MASTER AVIATION SNIPS, with amazing compound action, cut with half the effort required by conventional snips! They are preferred by many for their compact size, and ability to make intricate cuts. Left, right and straight cutting models, only 9¾" long, cuts 18 gauge metal. Bulldog combination model, 9¾" long, cuts 16 gauge stainless steel!

WISS SOLID STEEL SNIPS, made from a special grade of solid tool steel, are available in straight cutting, circular cutting and bulldog models from 7" to 16". Priced slightly lower than inlaid snips.

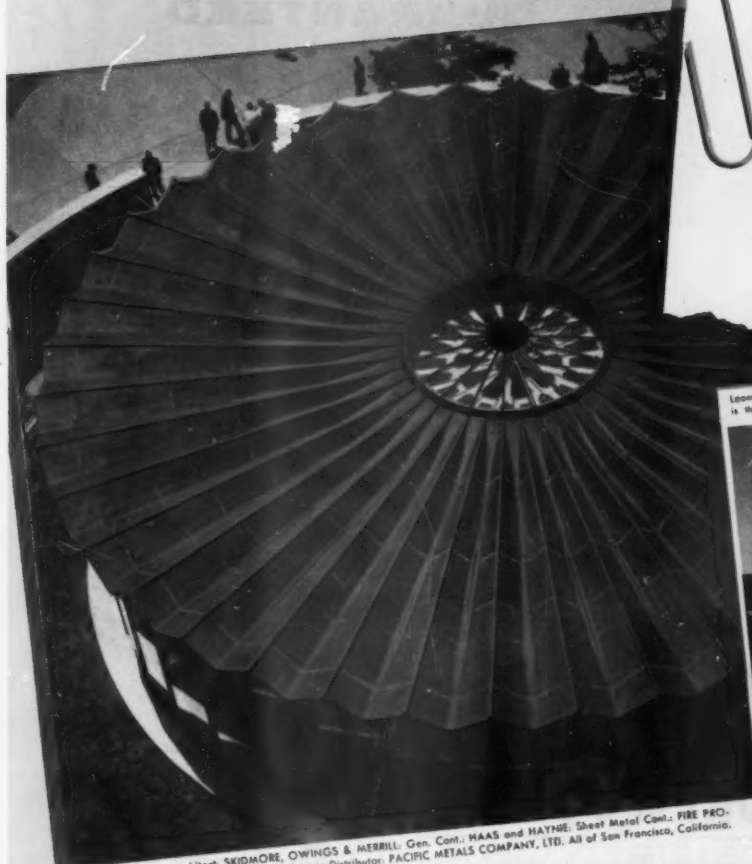
WISS

... Made by Metal Craftsmen for use by Metal Craftsmen
J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears

MEMO

Another example of how Revere Copper and Brass Incorporated promotes wider use of Sheet Copper for Building Construction. This advertisement will appear in *Architectural Record*, *Progressive Architecture*. Look for it!



Architect: SKIDMORE, OWINGS & MERRILL; Gen. Cont.: HAAS and HAYNE; Sheet Metal Cont.: FIRE PROTECTION PRODUCTS. Revere Distributor: PACIFIC METALS COMPANY, LTD. All of San Francisco, California.

Looking above the "Bank in the Round" is the new Crown Zellerbach Building.



"Bank in the Round" a striking example of the great freedom in design that is possible with REVERE COPPER

The "pleated" roof on the new Wells Fargo Bank American Trust Company building in San Francisco, Calif., is the result of an unusual design problem faced by the architects.

When they designed this ultra modern "Bank in the Round" they knew that many people would be looking down on it from the adjoining skyscraper in addition to those viewing it from the street level. The roof, therefore, could not be an ordinary one. Nor could the bank have a rectangular profile and still stand out against the tall building next to it.

The solution was the "pleated" roof you see above. It contains 12,000 lbs. of 16 oz. cold rolled Revere Copper, in 36" x 96" and 36" x 120" sheets. Copper was chosen to achieve this unusual roof because of its virtually unlimited flexibility in design, its eye-catching appearance (which takes on a striking patina as it ages) and its ease of workability into any desired shape or form.

This is another example of how the architect can dare to be different with copper because copper is so cooperative with his ideas, giving him practically unlimited freedom of design. A good reason to design your present and future structures with Revere Copper in mind.



REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.
Main: Rome, N. Y.; Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles; Minneapolis and Seattle, Wash.; Portland, Ore.; San Francisco; St. Louis, Mo.; and Washington, D. C.
Principal Cities: New York, N. Y.; St. Louis, Mo.; and Washington, D. C.

Distributors Everywhere



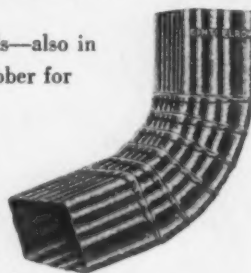
GUARANTEED

TO FIT LIKE A GLOVE

Cincinnati Elbows are shaped with tapered ends, guaranteed to fit any standard size pipe. The result: no more costly, on-the-job crimping and re-shaping.

Cincinnati Elbows are precision produced and formed on the world's finest fully automatic machinery, assuring constant, unvarying uniformity. Every elbow is hot-dipped in zinc after forming to give a smooth, completely rust-resistant finish, inside and out.

Available in all angles, sizes, metals—also in galvanized steel sheet. Ask your jobber for full details.



THE CINCINNATI ELBOW CO.

4730 MADISON ROAD ■ CINCINNATI 27, OHIO

General Filters Helps You Deliver CUSTOMER COMFORT at a PROFIT

Customer comfort is a profitable business. The only way to keep it profitable is to have comfort go hand in hand with satisfaction. That's why we make *General* products so customer-satisfying. It assures top performance and avoids call-backs for adjustments.



Every service call is an opportunity to install new units or replace elements. Be sure you have a supply in your service car.

General's Moisture-Matic HUMIDIFIER



With the foolproof valve

Completely trouble-free. No float to stick. Corrosion-free pan.

Enclosed valve seat. Guaranteed one year on parts.



General's FUEL OIL FILTERS

"Step-design" wool-felt element traps all moisture and dirt particles. Lifetime, heavy gauge iron and

steel construction. One bolt removal allows element replacement. Two sizes fit all plants.

General's CLEAN RIGHT Soot Remover



The instant, miracle cleaner for flues and fire chambers in any kind of heating plant. Will not harm burner parts. Cuts heating bills up to 25%.



Ask Your Jobber for the **GF** Products

GENERAL FILTERS, INC.

43800 GRAND RIVER AVENUE

NOVI, MICHIGAN

IN CANADA: Canadian General Filters, Ltd., 39 Crockford Blvd., Scarborough, Ont.

TWO NEW



FROM AUER

Designed with maximum free area!

RETURN AIR GRILLE, SERIES No. 5, with Sidewall, Baseboard, or Out-of-Wall models. A new high capacity line from the firm known for superior craftsmanship—AUER! Up to 920 sq. inches of free area! And that's just one of the features that will make your customers reach for order blanks when you give them details on these newly created units. Auer engineers designed the Series No. 5 with fins set at a 30° angle on ½" centers, making these grilles virtually vision proof when installed in either low or high sidewalls. Depending on line of vision, the grille is simply installed in either upward or downward position.

The No. 5 grille is of heavy, one piece construction. Sizes range from a compact 10" x 4" to a full 36" x 36". The standard Bufftone finish is baked on enamel. Have your customers examine the sturdy construction of an Auer grille... installation is easy with Auer... satisfaction a must. Stock the Series No. 5, the new high capacity Return Air Grille, and increase your sales potential. Write for spec & price sheet, Bulletin RG-61.



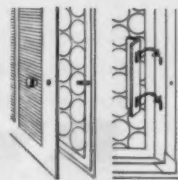
Baseboard Grille



Out-of-Wall Grille

A HINGED FRAME FILTER GRILLE Return Air Intake with greatly increased free area! The newly designed Auer unit features easy filter replacement. No tools are needed, merely remove the thumb nut and slip in filter clip. Ideal for installation where heating or air conditioning units are located in attics, crawl spaces or other inaccessible locations, the hinged grille is fastened to frame and is easily installed before or after plastering. Thus, this finely built grille will be popular with homeowners and home builders alike—lots and lots of sales opportunity for you.

Auer engineers designed the face bars to be stamped ½-inch wide on a ½-inch center and a 30° deflection. This provided greater free area, and permits installation with deflection up or down to eliminate visibility of filter surface. The filter is located approximately 1-inch behind face to provide more effective use of filter area. Available in all standard stock and non-stock sizes. Bufftone finish. Write for full specs and prices, Bulletin FG-61.



Easy filter replacement—only 2 parts to remove

THE *Auer* **REGISTER**
REGISTERS
and GRILLES

REGISTER COMPANY

6601 CLEMENT AVENUE • CLEVELAND 5, OHIO

"REGISTERS AND GRILLES
FOR EVERY HEATING
AND COOLING NEED"

RYERSON...

the nation's largest supplier of **SHEET METAL SHOP MACHINERY**

Rely on Ryerson for metalworking machinery and choose from 2558 different types and models that represent nearly 100 of the nation's leading manufacturers.

This is the most complete line of sheet metal shop equipment available, including the best type and right capacity for: bending, braking, drilling, forming, pressing, punching, rolling, sawing,

shearing, welding. Also a complete line of material-handling equipment and shop tools.

And remember: when you buy from Ryerson, you get a *double* guarantee—the manufacturer's warranty backed by Ryerson assurance of complete satisfaction. Contact your nearby Ryerson machinery specialists for full information today.

RYERSON

JOSEPH T. RYERSON & SON, INC., MEMBER OF THE  STEEL FAMILY



STEEL • ALUMINUM • PLASTICS • METALWORKING MACHINERY

Build the Sale

Around the Discriminating Prospect

WHILE ATTENDING RECENT state association conventions, we've heard a great deal about bidding practices used during the recent fall and winter. Comments made by speakers at these meetings have presented much food for thought.

One warm air heating and air conditioning dealer-contractor said: "A low price does not generate work. Cutting the price may win a contract to carry employees through a period of decreased volume, but this is unwise because when work picks up, it is difficult to restore pricing to its proper level. Builders, plant owners, friends of customers, and others have a habit of comparing prices."

Another speaker, a sheet metal contractor, said: "When there is severe competition for work, there is a tendency to tear down the recognition of the talent required to do a good job. Too often unethical conduct hurts the entire industry."

Another statement heard was: "It is too easy for people without business training to get into the contracting business. There are too many contractors now in business for the amount of work to be done."

If these speakers are right, there is little that an association — or a group of associations — can do about the situation. The most feasible solution to such pricing problems as are complained of, is good selling techniques. It is our opinion that other statements, also heard at recent meetings, tend to point a way to industry prosperity.

One such remark was: "Build your sales presentation around the discriminating prospect. Always give a prospect a choice between two or even three alternatives, never a choice between something and nothing."

Another speaker said, "Qualify your price by spelling out the advantages of a good system, and thus lead the prospect to associate a low bid with poor quality and poor performance."

Good business conduct and ethics were stressed by one convention speaker who said: "Low profit margins run up the overhead ratio per job. Without an adequate return per sale, there is no money to put into improving the business. The result is that only a minimum of service can be offered customers. Money is not available for better tools and equipment, complete inventory, employee training, and the many other items essential to building a business that is an asset to a community."

Summarizing all of the thoughts expressed by these industry leaders, it would appear that the best way to overcome price buying is through selling the price asked — that is, selling the value offered, and helping the prospect to automatically discount price as a major buying tool.





Where to Find

... for year 'round air conditioning. Here are 11 sources

MOST OF THE best prospects for central summer air conditioning are developed during the season's first hot spell, which usually occurs during the month of May. This makes May the key month in a dealer-contractor's summer air conditioning promotion program.

Prospect development is important — and exclusive prospect development still more important. But the prime objective is the closing of a sale. Thus, anything that a dealer-contractor can do to develop exclusive prospects, or win over prospects developed by others, means more work at a better profit. The key to the development of exclusive prospects — or development of favor among "shoppers" — is American Artisan's Standards for Rating Residential Cooling Systems Card. (This card was introduced during April 1960 and reviewed in April 1961.)

How to Use Standards Card

The *Standards* card can serve a dual purpose for its users: 1) as a sales promotion tool; 2) as a sales closing tool.

As a sales promotion tool, it not only provides a prospect with information he needs when making a purchase of a central system, but also provides the dealer-contractor

with strong talking points in favor of the system his company recommends.

As a closing sales tool, the dealer-contractor is in a position to prove why his recommendations — designed to meet the conditions outlined under the "Good" classification — are more costly to install than the conditions that are sacrificed in order to offer a price lower than that submitted by him. The "Fair" and "Poor" conditions listed on the card are obviously undesirable, even to the prospect.

Where to Find Prospects

Where are prospects for central summer air conditioning found? Some sources of leads to these prospects are:

1) *Old customers* — The people who have bought from you in the past really represent a double source of leads for you. They can refer you to their friends and associates who can use your skill and service to advantage and, frequently, they themselves may be prospects for more of the products you handle.

Once a man buys from you, he becomes a partner in a transaction with you. He is apt to be friendly, receptive, and willing to give you referrals. In fact, many buyers want others to follow their ex-

amples — to back up their judgment of the buying decision as a wise one. But since few customers will volunteer the names of prospects, it is important that you ask for them.

On the other hand, don't be shy about asking an old customer to buy again. If he was satisfied with his last purchase from you, he is a "natural" for another sale. Many salesmen do overlook the fact that old customers are the best prospects for add-on summer air conditioning. Make sure that such customers receive a copy of American Artisan's *Cooling Standards* card to prepare them for the approaching summer weather.

Ask Friends for Leads

2) *Friends* — One of the costliest mistakes a salesman can make is to hide his light under a bushel. Sales can result from the most unlikely circumstances. It stands to reason that the more publicity a dealer-contractor can garner for himself and his company, the better are his chances of selling.

Don't keep the *Standards* card a secret from friends and acquaintances. Tell them about it and how it can help them buy comfort this summer. Some of your friends may be in the market for central summer air condition-

Exclusive Leads This Summer

ing and may not have thought to let you know. Remind them of your business. Most of your friends, you will find, know people who could be good prospects for you. To be exact, make it a point to always ask your friends for leads.

3) *Influential people* — There are people in every community who exert a high degree of influence. These "influentials" are the people who know and are known — more important than this, their opinions and recommendations carry weight.

Get Them to Sell Others

It is not essential that they purchase what your company has to sell. It's more important that they are convinced of your integrity and the merits of your product. Make it a point to personally present a copy of the *Cooling Standards* card to every person in this group that you can possibly reach. Explain the card and tell them how it can help them if they are planning to buy a central summer air conditioning system. If they already have summer air conditioning in their home, point out how it can be of help to friends that do not have year 'round air conditioning.

You will find included in this



WIN PROSPECT PREFERENCE by offering free *Cooling Standards* cards. Point out that the information will help them have a comfortable home this summer.

group of influential people, the important business and professional men in your community, the heads of clubs, associations and fraternal groups, bankers, educators, and many others.

Get acquainted with the local

banker, newspaper editor, and head of the Junior Chamber of Commerce, for example. When you have, ask them for leads. You will be amazed by the results.

4) *Organizations* — The more people you know, the more leads



Try a Chain Reaction To Build Prospect List

Prospecting for Leads continued

you get. That's why belonging to various civic groups is a good idea for a dealer-contractor.

As one man puts it, "If I had a corner on all good ideas and customers, I might be tempted to keep them all to myself. But since I don't, I believe in getting together with as many people as I can. It usually works out to a mutual advantage."

Church, fraternal, civic, and trade groups can all be valuable sources of leads to new business; but don't join with the idea of only

"getting." Join with a sincere interest to serve the group. "Give" some of yourself and you'll find that leads will come more easily.

Sales People are Sources

5) *Other sales people* — There's nothing in the book that says you can't "swap" prospects with other, non-competitive businessmen. Do you know someone who might be in the market for Tom Baxter's used cards? Tell him. Chances are that Tom will reciprocate at the very first opportunity.

One man, a representative for an insurance firm, has found that he can often get referred leads

from a salesman who has just sold him something. Thus, having purchased a pair of gloves, tie, or shoes, he will ask the clerk if he knows of anyone who might like to save money on an insured savings plan. Not always — but frequently enough to make the approach worthwhile — this simple technique is responsible for uncovering a really interested prospect.

6) *Prospects who don't buy* — Salesmen who treasure their time, and all the smart ones do, always try to salvage something from a "no-sale" call. Even if the man they've approached is not in the market for their product or serv-

To: The Editors
American Artisan
6 N. Michigan Ave.
Chicago 2, Ill.

Please rush the following quantities:

_____ Standards for Rating Cooling Systems cards

_____ Standards for Rating Heating Systems cards

Enclosed is my check for \$. . . to cover reprinting costs.

(Please print)

Name _____

Company _____

Street Address _____

City and State _____

I am a dealer _____ wholesaler _____ manufacturer _____
other _____

STANDARDS for Rating Residential Heating and Cooling Systems cards can be used for presentation by salesmen, as give-away items for home shows, as direct mail pieces, etc. Designed to assist home owners in their purchase of a quality summer air conditioning system, the two-color check-lists are available at the following prices:

Quantity	Cost
50	\$ 1.25
100	2.35
200	4.50
300	6.60
400	8.80
500	11.00
1000	21.00
2000	42.00
3000	63.00
4000	84.00
5000	105.00

Use Prospects to Locate Prospects

HERE IS A WAY to get 14 leads from just one customer. On the line at the far left, enter the name of a current customer. Next time you see him, ask him for just two referrals. Enter the names he gives you on the two lines to the right of his name. Call

on these referrals and — whether you sell them or not — ask each of them for two referrals. Enter these four new names on the four lines to the right. Call on these new referrals and repeat the procedure. Here are 14 leads from one customer.

1 _____ (Old customer)	1 _____	1 _____
	2 _____	2 _____
		3 _____
	2 _____	4 _____
	3 _____	5 _____
		6 _____
	4 _____	7 _____
		8 _____

ice, they make it a rule to ask him to recommend somebody else who might be.

One sales manager explains it this way: "Many prospects who don't buy actually feel guilty about it. In order to make it up to the salesman, they will give him a good referral. The salesman who is on his toes will take advantage of this psychological quirk."

Compile a "Tailored" List

7) *Newspapers and publications* — The printed word is a gold mine of leads. Every day, newspapers publish the names of many prospects. New buildings, new offices, new jobs, new promotions, engagements, marriages, births, prizes, awards, graduations — the list is endless. Each item represents a solid lead — and a "quali-

fied" lead, because you know something definite about your prospect.

Also at your command are classified city, telephone, trade, professional, and social directories. The many organization membership lists — including service clubs, chambers of commerce, country clubs, alumni groups — can be of tremendous value in the location of prospects. From one or more of these sources you may develop your own "tailored" prospect list. Your principal problem is to select, from the tremendous range of sources available in addition to those mentioned here, the ones that are most likely to be in the market for a central summer air conditioning system.

8) *Direct mail* — Prospecting by mail permits you to reach more people faster and to save precious

time while the job is being done. Your wholesaler or manufacturer may assist you in the preparation of direct mail pieces, or you may write and mail your own. In both cases, direct mail is a relatively inexpensive assistant that separates the prospects from the "suspects."

Before calling on a prospect send a copy of the *Standards* card, briefly explain it, and mention that you will call to further explain the details. Letters written along this line make it easier for salesmen to secure an interview. The salesman knows that he is less likely to receive a cold reception, since, to some degree, the letter has opened the door.

9) *Special-need groups* — There are people who must sleep during the daytime due to the nature of their work. These people need their rest, and air conditioning will



Don't Overlook Special-Need Groups

Prospecting for Leads continued

make it possible during the summer months. These people form a special-need group, as do others. Sometimes a brand new look at the list of benefits provided by summer air conditioning will suggest prospect categories that never occurred to you. Pinpoint these special-need groups that can profit

from the services of your company, and you will have a new source of leads.

10) *People with whom you deal* — Many dealer-contractors do not realize that a number of prospects may be found merely by disseminating information about summer air conditioning to persons with whom they have financial dealings. A copy of the *Standards* card with an explanatory letter is one way to tell people about summer air conditioning for their home. A long and imposing list can be compiled if you take time to do it.

For example, if you are buying a home, such a list might include the bank officials where you secure the mortgage; the builder and the men who work for him; the various suppliers of the materials used in construction; the painter and his helpers; electrician; plumber; the milkman; grocer; service station attendants; drug-gist; doctor; dentist; lawyer; the merchant from whom you purchased furniture, etc. As a car owner, vacationer, or hobbyist, the possibilities are equally vast — and promising.



CALL ON INFLUENTIAL people — like your newspaper editor — and explain the *Cooling Standards* card, show how it has been designed to help people buy central summer air conditioning for their home

Interest Leads to Sales

11) *Advertise* — Respondents to your company advertisements will produce a certain number of inquiries. Remember that such responses do not necessarily indicate that all are prospects. But at least a portion of such inquiries come from people interested in your point of view on central summer air conditioning. These people make ideal exclusive prospects if provided with a copy of the *Cooling Standards* card, since this sales tool contains information they need to understand. The card lists the points that will influence the performance of the system they buy.

A good dealer-contractor keeps himself supplied with leads by never overlooking a possibility. What about that man sitting across from you? Is he a prospect? Might he know someone who is? Is he one of a special-need group that you can tap? Better talk to him. Have you looked over your household bills this month? The odds are that at least one of them comes from a man who could use summer air conditioning.



Well Equipped Servicemen Cut Call-Backs

A serviceman can only be as accurate as the methods he uses to diagnose malfunctions of equipment. Today's technician needs a complete kit of instruments to do the job quickly and accurately

By Harvey J. Sharp

TO ADEQUATELY SERVICE heating and air conditioning systems today, with the varied and complex applications of the equipment, a serviceman must be well educated and professionally equipped to handle all the service problems that occur. Gone forever are the days where, with a few hand tools and a short training period, a serviceman could service heating and cooling equipment.

While the basic principles of air distribution, heating, and refrigeration have remained the same, the applications are wider and cover more fields in home and industry than ever before. Engineering design, coupled with increased use of heating and air conditioning applications, combined with automatic control systems, make the modern serviceman a specialist — a specialist not only in heating,

air distribution, and refrigeration service problems, but also in handling allied service problems of the many components used in the application of this equipment.

Training Scope Increased

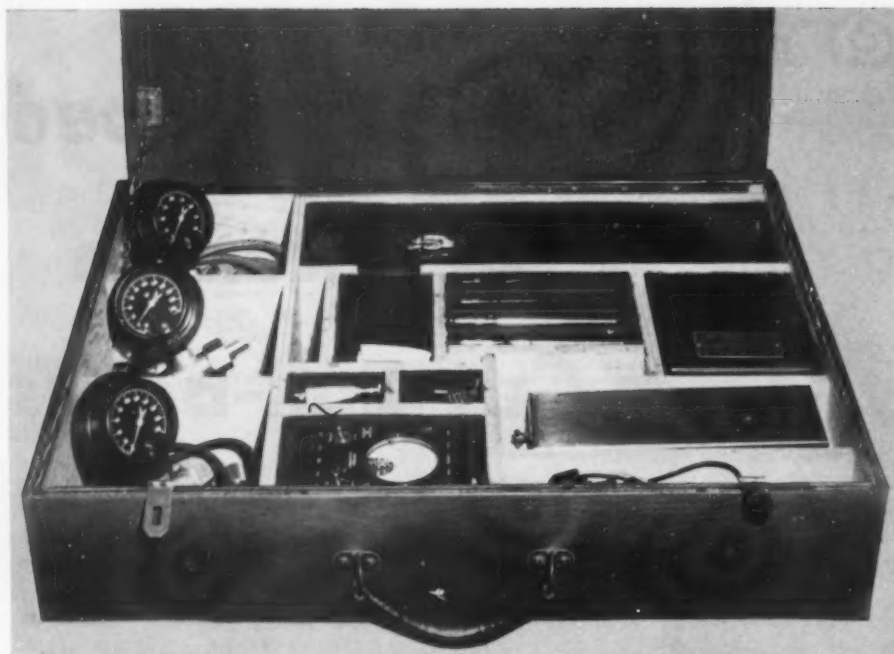
The servicing of these components requires special training in the fields of electric and pneumatic systems. The automatic controls and safety devices used on equipment require the best of technical knowledge, not only in their proper operation and adjustment, but also in the proper wiring and piping for the control circuits.

In addition to a thorough knowledge of controls and control systems, the serviceman must be trained to handle the various soldering and welding requirements that are necessary to repair broken

refrigerant lines, replacement of valves, driers, condensers, motor compressor units, equipment braces and supports, water supply and discharge lines, etc. So the serviceman must be a technician that has been well trained in service problems of the related trades — electrical, welding, and piping — in order to solve and correct the problems of automatic operation.

Can't Rely on Guesswork

Today's serviceman cannot depend on guesswork. He must prove to the customer that his diagnosis of a service complaint is correct and that his remedies are justified and economically sound. He must protect his professional ability, and he can do this only through the proper use of instruments and tools.



CARRYING CASES, with sturdy compartments for each service tool, protect expensive instruments from damage and frequent re-calibration; also, an empty compartment serves as a reminder to prevent the serviceman from leaving a tool or instrument behind when the job has been completed

continued . . .

Investment in Service Tools Pays Dividends in Accurate Diagnosis

The competitive era, experienced by all phases of business today, requires the use of any method or means that can be utilized to reduce costs. The heating and air conditioning industry is no exception. Any reduction in the number of motor-compressor units returned for replacement, either in or out of warranty, represents a large saving to customers. This also applies to all other equipment used in the air conditioning system.

Customers today are more critical than ever of costs brought about through high wages, inferior servicing, and poor workmanship. I believe that all segments of this industry should strive for a re-

duction in unnecessary and unwarranted replacement of parts and equipment. Servicemen equipped with good instruments can go a long way to make this possible.

The heating and air conditioning industry can put more emphasis on training of service personnel. In addition, corrective measures can be taken in the application of equipment and related components.

How to Cut Service Calls

Manufacturers of compressors, motors, metering devices, and related equipment can cut service calls by requiring:

1) Equipment be used only

within its proper capacity range.

2) Installed equipment be protected with adequate controls for safe operation and economical service to the user.

3) Installation of equipment must conform to the highest standards for protection of the equipment, but should be economically sound for the customer's investment in the equipment.

Wholesalers and distributors of equipment should conscientiously follow manufacturers' recommendations in the application and installation of equipment when selling to dealer-contractors. In addition, they should be equipped to handle the following:

1) Tests should be conducted

before replacement sales are made on all motor-compressor units, system components, and controls. (This will reduce to a minimum the number of parts returned.)

2) Sell only to qualified dealer-contractors who agree to follow manufacturers' sales and service procedures.

3) Conduct extensive service training schools in theory, trouble diagnosis, and repair techniques.

Must Keep Pace with Trends

Dealer-contractors who realize that their only justification for being in business is to sell and service equipment at a profit to themselves and to their customers become an asset to the community because they are able to render this service in an economical manner. Good dealer-contractors devote more of their company's time and money in the training of their service staffs, and invest large amounts of money in service equipment in order to keep pace with the growth of new trends in the heating and cooling industry. Reliable dealer-contractors and their servicemen believe in:

1) Sound engineering and installation practices that are to the best interests of the customer, and . . .

2) An industrywide training and educational program for all servicemen which emphasizes the importance of modern service instruments and tools.

Service Kit Suggested

A serviceman, properly equipped to service heating and summer air conditioning equipment, requires an investment of approximately \$3000 in service instruments and tools to accurately diagnose and repair malfunctions in the equipment being sold and installed in today's market. A list of the recommended instruments and tools for this purpose is included with this article.

A Suggested Modern Service Kit

Motor-Compressor Unit Instruments

Approximate Price

1 Portable high vacuum evacuating pump	\$ 329.00
1 Maintenance kit for evacuating pump	16.90
1 Electric high vacuum gauge (leak and moisture indicator) — range 20 mm to 20 microns — five stations, with two gauges, tube and cords	197.50
1 Five inch closed end type manometer	33.50
1 Portable hermetic compressor analyzer and tester	397.00
1 Electric circuit test kit	84.50
1 Three phase sequence indicator and test cord	19.50
1 Hermetic system cleaner for motor burn-out	100.00
	<hr/>
	\$1177.90

Refrigerant Charging and Testing Instruments

1 Charging cylinder with volume dial	48.57
1 Portable charging drum stand	12.00
1 Tank scale mounting bar	5.75
1 Hand scale (80 lb capacity)	12.50
1 Electronic leak detector	189.00
1 Carrying case for leak detector	22.43
1 Leak detector maintenance kit	26.88
1 Hermetic valve service kit	23.50
1 Superheat thermometer kit	15.50
	<hr/>
	\$356.13

Air Balancing Instruments

1 Duct thermometer kit (three instruments)	21.56
1 Electric thermometer kit with three probes	77.85
1 Leather case for electric thermometer kit	9.95
1 Low velocity air meter	12.90
1 Sling psychrometer	12.50
1 Portable temperature and operation recorder	76.50
1 Wide range anemometer (Range, zero to 6000 fpm)	79.50
1 Carrying case and battery pack for anemometer	32.50
1 Spare battery for anemometer	6.50
1 Electronic sound tracer	64.50
1 Tester for thermostatic control type equipment	29.75
1 Smoke gun kit (includes candles and smoke bombs)	12.50
	<hr/>
	\$436.51

Oil and Gas Combustion Instruments

1 Combustion efficiency testing kit	73.60
1 Special gas heating equipment kit (for oxygen and CO ₂ analysis)	136.90
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	\$210.50

Soldering and Welding Equipment

1 Portable soldering and brazing tank and tool kit	80.00
Additional welding tools, regulator and gauges	99.00
	<hr/>
	\$179.00
Hand tools — wrenches, drills, saws, etc.	500.00
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Total: \$2860.04



PRACTICAL SOLUTIONS TO AIR CONDITIONING PROBLEMS

By S. W. Reid
Air Conditioning Engineer
Gilbert Associates, Inc.

Where Inside Noise Originates

Sources of noise and how they can be minimized through good engineering are explained

LAST MONTH's article in this series dealt with noise problems which outside components of residential air conditioning systems create. The growing concern with these problems among dealer-contractors and municipal authorities was brought to light in an extensive survey conducted by the editors of *American Artisan*, and reported in the March 1961 issue ("Now is the Time to Head Off Future Noise Trouble").

To complete the story on noise, we shall this month review some of the inside noise problems and ways to avoid them. Inside noise has been of concern since the very first residential air conditioning system was put to use, whereas outside noise has been of concern only in the last few years, having been brought about by the almost universal use of outside located

cooling towers and air cooled condensers. Municipalities have forced use of these condensing means to avoid the waste of city water directly used for condensing in earlier systems.

Three Sources of Noise

The subject of noise attenuation can lead to a highly technical discussion involving decibels, frequencies, octave bands, loudness, absorption coefficients, etc. However, for the dealer-contractor who does not have the time nor the interest for delving into the mathematics of sound, there are certain practices which, if observed, will keep him from doing things which will create problems of noise. If he can learn these and follow the respective rules prescribed, he should have no more difficulty

with sound problems than he has with piping, wiring, ducting, or load estimating.

Rules to Minimize Noise

Let us discuss some of the things which can help a dealer-contractor to produce a quiet installation. These will be considered as measures which will minimize:

- 1) The transmission of equipment vibration through the structure,
- 2) The transmission of equipment noise to the conditioned space, and
- 3) The generation of miscellaneous noises in the duct system due to poor construction or excessive velocity.

Packaged equipment containing a complete refrigerating system and a blower has factory engi-

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons, according to the American Society of Heating, Refrigerating, and Air-Conditioning Engineers. ASHRAE defines air conditioning as:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

neered vibration isolations and sound control. For example, the compressor and blower assembly are usually rubber mounted. The piping to the compressor will either incorporate flexible connections, or it will be designed with bends and offsets that will absorb compressor vibrations.

The fan discharge will incorporate a flexible connection to prevent the transmission of blower vibrations to the unit cabinet. In addition, sound absorbing insulation will usually be found on the inside of the unit panels.

Dealer is Responsible

Although the installing dealer-contractor has no direct responsibility for the noise level and vibration of the air conditioning package, he is responsible for applying it to the best advantage. For example, he must follow carefully the installation instructions of the manufacturer, making sure all shipping bolts and clamps are removed, and that the unit is set on a sturdy base.

He should check internal piping to see that lines do not touch each other, and grommets are in place where lines pass through parts of the cabinet. He should properly align the blower drive, bring the belt to the proper tension, check the blower speed, and lubricate all bearings. Finally, he should check the fit of the cabinet panels to make sure they are tight and do not rattle or allow air leaks that

would cause a disturbing whistle.

Packaged equipment, with its internally isolated components, does not present the problem of mounting or support that non-isolated components present. However, the place to locate conditioning equipment with the most assurance of avoiding trouble from vibration transmission to the structure is on a concrete basement or utility room floor. If equipment must be located on a floor supported by wooden joists, the area chosen should not be directly above or next to a quiet room such as a bedroom or living room.

Further Location Pointers

If possible, the equipment should be placed as near the end of the joists as is practical and not near their center. If there is any question about the ability of a frame floor to carry the proposed weight of the equipment, the condition should, of course, be investigated by a qualified structural engineer.

No All-purpose Rule

Generally speaking, if the above precautions are taken, a packaged unit with internal isolation can be supported by a frame structure without additional vibration isolation except, perhaps, the use of commercial vibration mounts of felt or rubber under the support points.

There is no simple all-purpose answer for cases where equipment

must be located on a floor or above a ceiling where trouble from vibration appears to be obvious. Specially engineered vibration isolators can be used, but these should be selected only by men who are specialists. The successful use of vibration isolators depends in part upon the floor beneath being rigid. If it is not, careful analysis is required.

Concrete Can be Used

As a further step toward isolation, a concrete slab may be employed. The extra mass lowers the frequency of vibration. The slab should be about five times as heavy as the load it will carry. It can be mounted directly upon vibration isolators, or upon a glass fiber blanket. In the latter case, isolators would be placed on top of the slab under the equipment.

In addition to the precautions noted above, which minimize the direct transmission of vibration from equipment to the structure, precautions must be taken to isolate the equipment from the ductwork, piping, and electrical conduit which connects to it and which could carry vibrations out to occupied parts of the building.

All duct connections to equipment should include a section of flexible, fire-resistant material with no less than one inch slack. Such connections should not be used to support the ductwork attached to them.

Isolation of the piping is no



Insulated Plenum Cuts

Solving Problems continued . . .

less important than is isolation of the ductwork. Piping can be isolated in several ways. The simplest method is to install a length of flexible metal tubing in the line. An improvement is to use two such flexible lengths separated by an elbow.

Less Severe Isolation

For less severe isolation, the use of two elbows carrying three mutually perpendicular pipes may be all that is required. In any method, care must be taken to place pipe supports or hangers where they will not pick up and transmit vibrations to the building.

Electrical conduit is usually run as rigid material to a point near the equipment. From this point into the unit connection box, flexible conduit is usually used. This in itself normally provides sufficient isolation when reasonable slack is allowed. A more positive installation would include a loop in the flexible conduit.

Handling Noisy Equipment

Care in the isolation of equipment from its supporting structure and connecting ducts, pipes, and conduits will preclude most vibration transmission. However, if the mechanical equipment is noisy,

the sound may reach the conditioned space by transmission through the walls, ceiling, or floor of the equipment room, or by transmission through supply and return ducts.

Choose Remote Location

The air conditioning dealer-contractor can save a lot of noise control work if he can locate equipment known to be noisy as remotely as possible from quiet sections of the air conditioned space. A utility room next to a bedroom or living room, for example, would not be as desirable from the noise standpoint as would, say, the corner of a garage adjoining a kitchen.

Location Near Quiet Room

When equipment must be located where it is separated from a quiet room by only a frame partition or ceiling, these parts of the structure should be constructed of staggered studs through which is woven a blanket of insulation. As an alternate, a partition of solid masonry such as 4 in. brick is quite effective. The use of hollow masonry blocks is not as effective as is the use of solid blocks.

Where equipment room walls cannot be treated acoustically, it is possible to achieve corresponding results by enclosing the offending equipment in a suitable box lined with acoustical insulation.

Blocking of equipment noise by treatment of equipment room walls, floor and ceiling, or by the use of an insulated box will not prevent noise from traveling through the supply and return ducts.

Lined Plenums Are Effective

The unit supply plenum, when lined with acoustical material, is a very effective sound trap. Tests have shown that best results are achieved with this procedure when the interior surface area of the plenum is at least ten times the cross sectional area of the blower discharge opening.

If a plenum cannot be used directly with the equipment, similar results may be achieved by installing a sound box at a more convenient point in the discharge duct. This box would be lined and, like the plenum, should have an interior surface area at least ten times the cross sectional area of the duct feeding it.

Duct Lining Helpful

The application of insulation to the inside of ducts offers a further means for the reduction of noise being carried from the equipment. The length of duct thus insulated should be at least ten times the average duct dimension. As the ratio of duct perimeter to duct cross sectional area decreases, the effectiveness of acoustical insulation decreases.

Equipment Noise Level

This explains why certain sound boxes consist of an expanded duct section subdivided by longitudinal partitions into passages of small cross section. These are available commercially and are most compact and effective sound attenuators as compared with simple duct lining.

Return Duct Noises

A frequent path of equipment noise transmission is the return duct. This duct can become very short where equipment is located in a utility room separated by only a partition from the conditioned space. When it is at all possible, the return system should have at least one and preferably two elbows. These serve to reflect sound waves back upstream. They can be made more effective as sound attenuators if they are lined along the outside bend.

Duct Generated Noises

So far, our discussion has been concerned with means for preventing equipment generated vibration and noise from carrying into the occupied spaces of a house. Let us now consider noises generated in or by the duct system. In this category, perhaps more than the others, the dealer-contractor has complete control and, with care in design and construction, can avoid most of the trouble that is possible.

Noise resulting from excessive

air velocity can be avoided by following the recommendations of the ASHRAE, or other standard authorities such as the NWA-HACA.

Popping of Duct Walls

Noise resulting from the popping of the duct walls due to internal pressure changes can be avoided by cross breaking large metal sections to stiffen them. It can also be corrected by proper application of stiffening angles to the outside of the duct.

Noise resulting from the movement of air over sharp edges can be avoided by making all laps in the direction of air flow, and by hammering down all seams as the duct is constructed.

Use Rigid Dampers

Poorly constructed dampers often cause noise. Edges should be turned back on themselves to avoid presenting a sharp edge which might cause an air stream whistle. Splitter dampers should be stiffened so they will not flex in the air stream, their operating mechanisms should be substantial enough to hold them at the desired position without rattles.

Abrupt sections of expansion or contraction and square elbows without vanes should be avoided where velocities are high.

Long lengths of stack should be constructed to allow for expansion due to temperature if the system

is to be used for both heating and cooling.

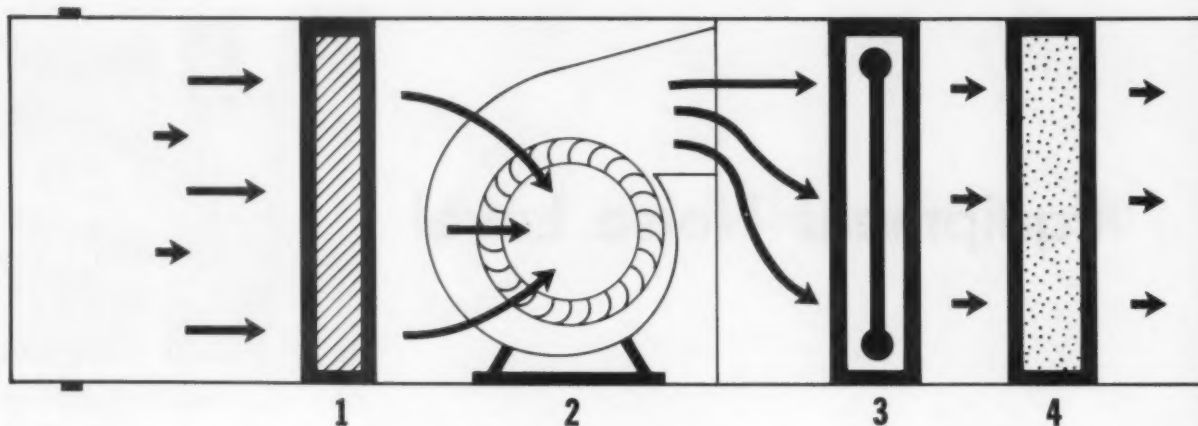
Supply and return ducts should be constructed to avoid cross talk between rooms. In general, this means that a stack should serve only one room.

Register, Grille Noise

The noise generated by air passing through a register or grille has been found to vary with both the velocity and the type. In one study, a register with vertical vanes set for a large spread developed considerably more noise than a plain perforated grille at the same face velocity. Some manufacturers publish catalog recommendations with respect to noise along with equipment ratings. Where this information is not available, it is considered safe residential practice to limit grille and register face velocities to under 1000 fpm.

Register Generated Noises

The use of insulation behind a register will help stop equipment-generated noise from coming into the room through the duct system; but it will do nothing toward reducing noise generated by the register itself. Balancing of air flow should be done with a damper near the branch take-off. This will eliminate noise which might result, for example, when a register damper is in the near closed position.



Air Treatment Center Offers Environmental Control

... by removing dirt, dust, odors and germs; adding negative ions; duplicating atmospheric fragrance; and controlling humidity and temperature

AIR CLEANING MAY soon become the primary reason for the selection of forced air distribution in connection with heating and summer air conditioning. This is the opinion of the New Developments Committee of the National Warm Air Heating and Air Conditioning Association, as expressed in a report presented to the association's Research Advisory Council. The report states:

"Intensive studies on air disinfection have indicated two distinct control measures:

- 1) Suppression of dust and lint
- 2) Disinfection of droplet nuclei

"A third measure, control of relative humidity, is important. It has been shown that the viability of certain organisms, sprayed into the atmosphere from a liquid suspension, is dependent on relative humidity. The mortality rate of

the organisms is very high at a relative humidity of 50 percent, and it decreases as humidity goes above or below this figure."

Control Covered Separately

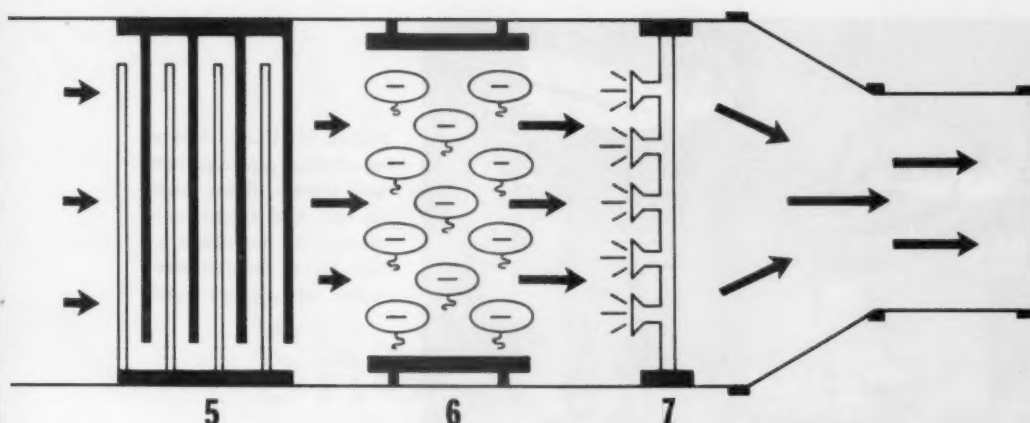
Humidity control is not covered in the report, but is being undertaken as a separate project. Dust

and lint control by effective filtration reduces germ presence in circulated air by retaining the vehicles upon which bacteria are attached. Filtering devices for this purpose vary widely in efficiency, original cost, and maintenance.

Some conventional filters are in the order of 5 to 15 percent effective on the basis of a discoloration

THIS ARTICLE is the last of four reports made by the New Developments Committee of the National Warm Air Heating and Air Conditioning Association to acquaint the members of NWAHACA's Research Advisory Council with problems that now face or will face the industry in the not too distant future.

In this article the committee reports on germicidal filters and their effect on air delivered to the living area. Members of the New Developments Committee are: M. E. Ralston, The Williamson Co., chairman; Al Galaba, Morrison Products, Inc.; W. L. Riehl, International Heater Co.



THIS SCHEMATIC DRAWING shows how an air treatment center of the future may be arranged so that return air will pass through an impingement filter (1); blower (2); ultraviolet lamp (3) for sterilization; activated charcoal filters (4) where objectionable odors will be removed; electronic air cleaner (5) which will remove small dust particles; device for adding negative ions (6); and spray nozzles (7) which will supply desired artificial atmospheric environment such as freshness of the seashore, fragrance of pine woods or a rose garden. Temperature and humidity can also be provided by such an air treatment center, with equipment being located either upstream or downstream as application requires. This arrangement is not necessarily the order that must be used

test of the National Bureau of Standards, which has been used in the appraisal of electronic type air cleaners. However, there are some strainer type filters that rate as high as 95 percent in the same type of testing arrangements.

To remove vapors, presumably containing bacteria and droplet nuclei not held by the particle retaining filters, activated charcoal or carbon can be utilized to absorb a majority of these bacteria, as well as odors, vapor, and noxious gases, including such ozone as might be released by ionizing devices.

Continue Filter Studies

Germicidal vapor methods have not generally proven effective in reducing harmful bacteria that escape the filtering means. Ultraviolet irradiation from tubular lamps in the air stream and ozone released into such an air stream

by a suitable lamp or generator, are the only presently known means to exterminate bacteria in the ducted air. Chapter 6 in the ASHRAE Guide, 1960, states: "Not enough is known about the complete biological effects of air ions to permit giving specific recommended levels of ion density."

Ozone not in excess of 0.05 ppm is allowable. However, there is currently some suspicion that ozone and ion releasing devices continue to challenge researchers, as to their influences on air delivered to living areas. These factors are present in nature through solar rays and lighting. It is known that solar rays, ion balance, and ozone influence are continually fighting dustborne bacteria.

The question arises, "What, if any, action should be taken to destroy bacteria held by filter media?" The answer is a matter to be weighed in further filter

studies. Thus, the New Developments Committee recommends that, because particle filtration and humidity have more to do with control of airborne bacteria than chemical or electronic germicidal provisions, this relation underlines the necessity of their being considered in relation to each other, rather than separately. This does not exclude the value of these specific germicidal devices.

Two Approaches Suggested

The minimizing of infiltration and of heat loss, occurring with new types of house construction, dramatizes the need to completely condition the indoor atmosphere in every practical phase.

There are two apparent approaches to the improvement of filter efficiency — electronic, and strainer types. The degree of improvement can extend upward to 95 percent by either method. The problem is one of economics.

What percentage of filter efficiency by U.S. Government standard should a Silver Shield system provide, in addition to AGA and Commercial Standards qualifications? This question is one for NWAHACA to answer, and, this in turn, will be the responsibility of the Research Advisory Council. The New Developments Committee suggests that such a study project be undertaken.



INSIDE SECTION of heating-cooling package contains blower, filters, cooling coil, and electric strip heaters, all controlled by thermostats located near center of waiting room

Summer Air Conditioning Units Combine With Electric Heat to Serve Waiting Room

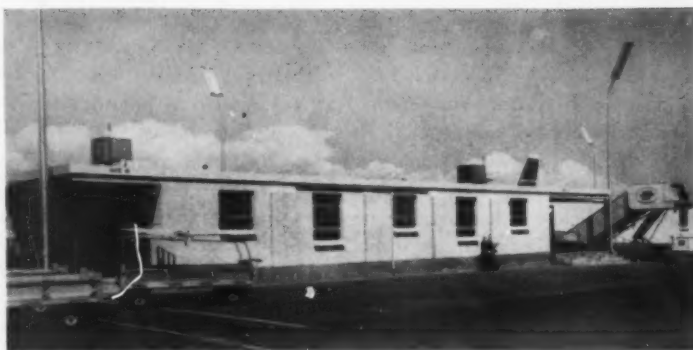
EXTENSION OF passenger facilities at Denver's Municipal Airport offered Englewood Heating and Air Conditioning Co. an opportunity to combine remote air cooled summer air conditioning and forced air direct resistance electric heating for an area where ductwork was not required.

The interior of the building was served by two store-type units — one located at each end of the waiting room. These units contained the filters, blower, electric heating elements and cooling coil.

Air was discharged through a three-sided diffuser located about seven feet above the floor.

Install Rooftop Units

Remote air cooled condensing units were located on the roof and directly above each unit. The rooftop location offered several ad-



AIR COOLED condensing units located atop passenger waiting room at airport provides easy access for maintenance and protection from mobile equipment

vantages in this case: 1) easy to reach for servicing; 2) above the level of blown refuse; and 3) protection from mobile equipment.

Each waiting room was equipped with two units, each with a 5 ton cooling capacity and 39,-

000 Btuh electric heating element. Maximum occupancy was set at 75 passengers.

The editors acknowledge the cooperation of Lennox Industries Inc. for providing the photographs and information for this article.

AMERICAN ARTISAN

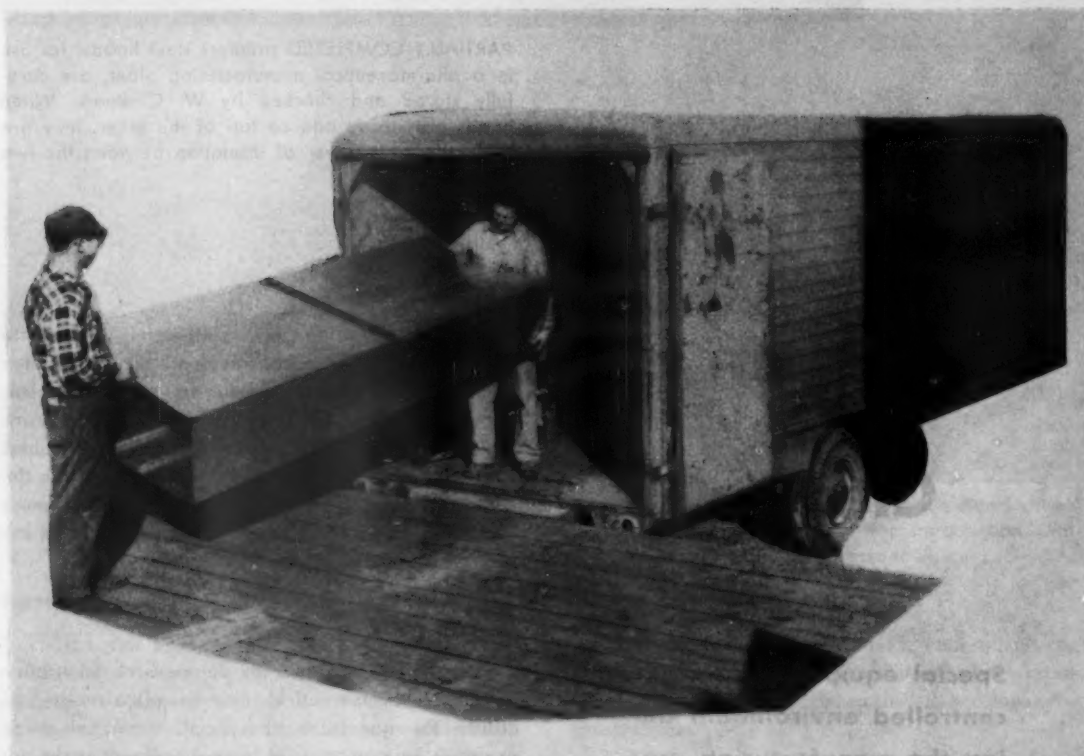
Sheet Metal Section

Ventilation

Dust Removal

Architectural

Specialties



ALL-WEATHER trailers are used to move 30,000 lb of ductwork daily to job site Page 78

Metal Hoods Hem in Clean Air Page 74

Streamline Operation Matches Plant Capacity Page 78

How to Fabricate a Stainless Steel Ricer Page 83



PARTIALLY COMPLETED stainless steel hoods, for use in a pharmaceutical manufacturing plant, are carefully stored and checked by W. C. Ream. When hoods are stored one on top of the other, they are protected by a layer of insulation between the two hoods

Metal Hoods Hem In Clean Air

Special equipment to create controlled environment during the manufacturing process is more frequently used today than in the past

INDUSTRY'S QUEST for new and better products to provide comfort, pleasure, and health places a burden on industrial research departments. Often the scientists need special equipment to aid them in their work with pilot experiments. Usually they call in sheet metal contractors, explain their problem, and ask the contractor what they can do to provide equipment that will create the conditions they need for the experiments.

Custom Work Helps Research

Providing this service for the research laboratory of a large pharmaceutical plant has often resulted in orders for quantities of special apparatus when processes have progressed beyond research at the experimental stage to the production stage. Such is the case for Sink & Edwards, Indianapolis sheet metal contractors, headed by Merritt L. Thompson, president. One recent order for 18 special stainless steel hoods was the outgrowth of a solution provided for an experimental investigation in the establishment of a positive equilibrium environment for a process involving drug components.



INTERNAL BRACES are formed from same type of stainless steel, with 1 in. hems braked at 90 deg angles on three sides and a 180 deg hem on the bottom



The stainless steel hoods were of various lengths to meet the requirements of the assembly area. The special features of the hoods involved a slanted glass observation port running the entire length of the hood, with sides and ends sealed and the bottom of the hood left open. Workers assembling the drug components would reach under the hood and perform the operation required in a still air environment.

Internal Braces Used for Hoods

These hoods were made of 16 ga, No. 4 finish 304 stainless steel. When hoods were longer than 54 in., internal bracing was provided.

Bracing was achieved by the use of two pieces of the same type stainless steel cut to the inside dimensions and welded back to back. Each brace was hemmed on two sides and at the top to provide the rigid support needed. This hem was 1 in. wide, turned on a 90 deg angle.

Similar types of hoods fabricated from the same material, but with controlled induced air temperatures and volumes, required bases constructed with round, square, and rectangular holes which were



BASES FOR A controlled atmosphere hood utilize different shape openings for introduction and removal of air and fluorescent lighting

strategically located to maintain the atmospheric conditions specified for the pharmaceutical operation. One of these bases is shown in an accompanying illustration.

Punch Square, Round, Rectangular Holes

It will be noticed that three types of holes were used and grouped to provide air and lighting. The round and square holes were mechanically punched with a power operated punching machine. The rectangular holes were achieved by punching a square hole and filing to the exact dimension.

continued . . .

Environment Hoods for Industry



COMPLETED roof mounted filter cabinets are examined by (l to r) foreman C. L. Johnson, Merritt L. Thompson, president, and W. C. Ream, vice president

The rectangular holes were used to mount ultra-violet light fixtures which were located beneath the base of the hood. The square holes were used to introduce jets of tempered air that had passed through absolute type air cleaners. The third set of holes (round) were used to exhaust air to a collecting system.

The handling of air for pharmaceutical plants often requires that the air not only be cleaned to meet strict requirements specified for in the production of drugs, but also that exhaust air be thoroughly cleaned before it is discharged to the atmosphere.

Roof Filter Cleans Exhaust Air

To solve this problem, Mr. Thompson and his associate, W. C. Ream, designed a roof mounted absolute filter cabinet in which air being exhausted is passed through the filtering device prior to its discharge to the atmosphere. These roof mounted exhaust filter cabinets were fabricated of 18 ga galvanized sheet steel fastened securely to $2\frac{1}{2} \times 2\frac{1}{2} \times 3/16$ in. angle iron frames. The filter cabinets were welded at all seams on the top, bottom, and three sides. The fourth side was formed by a hinged door utilizing self-tightening latches to secure 100 percent protection against exfiltration. These filter cabinets contain



FRAME of roof mounted filter cabinet is of welded angle iron construction to provide an airtight, sturdy enclosure

a special frame for the absolute filters which clean the air before it is discharged. The frames are held in a diagonal position and tightly fitted against their bases by the use of wing nuts attached to a bolt with running threads. Sponge rubber gaskets were used to seal the compartment at the hinged door and between the filter and filter frame.

After the air has passed the absolute filter, it is then discharged to the atmosphere at approximately 5000 fpm through a tapered transition in the top of the filter chamber.

Many of the mechanical operations in Sink & Edwards are the result of continuous effort on the part of the company's officers to provide its employees with machines that will make their work easier. One recent addition to the shop is a 10 ft, 14 ga capacity hand brake that has been adapted to powered operation. This was accomplished by the adaptation of a hydraulic device connected to levers and pistons that lift the lower bed of the brake to the desired position when the operator activates a control valve located at one end of the brake.

Sink & Edwards, Inc. has a long history of service to the Indianapolis area. Established in 1909, it moved to its present location in 1927, where the original building was enlarged during World War II to provide a 100 x 200 ft shop. Some of the well-known buildings in the Indianapolis area contain air distribution systems fabricated and installed by the company. One of these buildings is the Murat Temple. Eli Lilly Co. is another customer.

Background Leads to Specialties

The company was founded by Frank G. Sink and R. H. Edwards. Mr. Sink died in 1945, and Mr. Edwards died in 1949. During this period Fred C. Fisher and Merritt L. Thompson acquired the stock of the two original partners and have since made some of the stock available to the company's longtime employees. Company stockholders at this time are Merritt L. Thompson, president; W. C. Ream, vice president and treasurer; and T. D. Hawks, secretary.

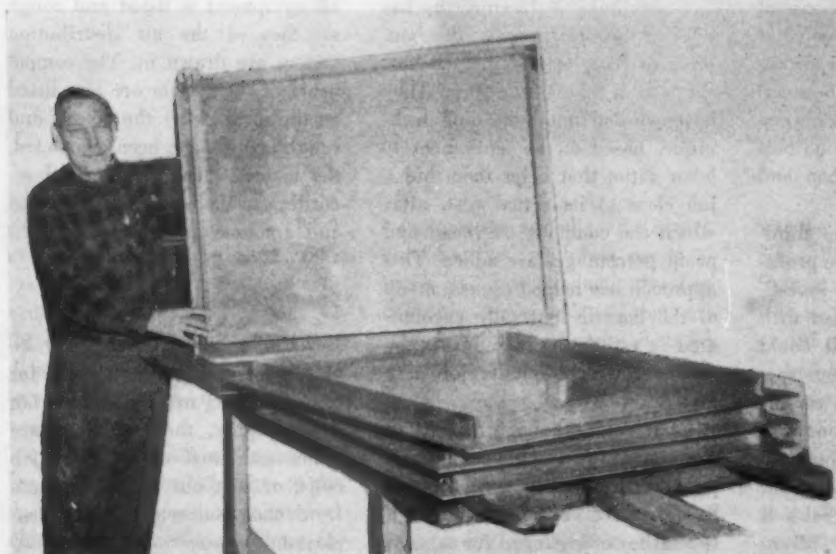
The company specializes in ventilating and air dis-

tribution systems. Its annual volume amounts to over \$1 million a year, which does not include the cost of air handling equipment.

Another division of the company specializes in builtup roofing; this segment of the business is located in another section of the city.



HEAVY DUTY hand brake has been modernized with a hydraulic assembly in order to reduce work required of mechanics



PANELS for roof mounted cabinet are prefabricated and seam welded to the cabinet frame

JOB TICKETS are clipped to shear, and used to begin a streamlined duct section fabricating assembly line



Streamline Operation Matches Plant Capacity

By specializing on one segment of the sheet metal field, this contractor has determined the type and size jobs that are best suited to his organization

A LONG TIME AGO the officers of our company realized that some of the work we did was more profitable than other types. A thorough study of our operation determined the type of work we could do best with our investment in shop and office equipment.

Once we uncovered the minimum size job that would be profitable to us, we carefully investigated every detail connected with our operation, and how it could best be improved to help our specialty. The system we now use has proven to us that the decision was a good one for both our company and our customers," says C. J. Porter, president, Utility Sales & Engineering Co., Rochester, Minn.

Utility Sales & Engineering has selected for its specialty the handling of complete mechanical bids for jobs of \$25,000 or more. They have worked out a bidding technique, based on an equipment to labor ratio, that helps them bid a job close to its actual cost, after which the company overhead and profit percentages are added. This approach has helped remove many of the hazards normally encountered in estimating, and favors the customer with a quality job at a fair profit to the company.

Each estimate begins with an examination of the blueprints supplied by the consulting engineer or the architect. With the aid of a special form developed for takeoff,

all equipment is listed and rough sketches of the air distribution system are drawn in. The components of the system are also listed on the form. After the takeoff and rough layout have been completed, the material sheets are priced according to the equipment required and amount of labor involved.

Set Procedures Followed

When a subcontractor will be employed, as might be the case for electric wiring or for steam or hot water piping, these portions are either estimated on previous job costs, or sent out for an estimate from the contractors to be employed.

SECOND STEP in assembly is the notching procedure



FOLLOWING the notching operation, sheets are passed through a standing seam machine if duct width requires joining



When a contract has been awarded, the material sheet, estimate, and all other paperwork connected with the job is routed to the engineering department, where detailed drawings of the duct system, equipment location and shop are prepared.

Shop fittings are made according to pre-designed sketches of the various fittings which do not include their dimensions. These di-

mensions are added to the sketch according to individual needs of trunk and branch ducts. As shop drawings are completed, they are routed to the sheet metal shop for fabrication, where each order is filled according to the construction schedule.

The amount of time required to fabricate the fitting (or duct section) and the weight of metal used is recorded on the shop drawing

by the mechanic finishing the piece. When the duct sections and fittings are completed, they are sent to the job site in a company owned trailer.

Just before they are sent to the job site, the fittings are checked against a master material list, to which has been added the data provided by the mechanic. The shop sketch is delivered, with the ductwork, to the job site for use



NOTCHED SHEETS are rolled down a gravity roller conveyor to lock forming operation in the next step of the assembly

continued . . .

Production Increases When Made Easy for Employees

by the installation superintendent and his crew, who add the erection time and any other pertinent facts. When there is no longer any need for the shop sketch, it is returned to the office and placed in a job file folder.

Data Recorded on Job Ticket

As information on costs reaches the office, it is recorded on a job ticket maintained in the bookkeeping department, after which the original memorandum of the cost and time involved is placed in the job ticket file. Data compiled on the job ticket in the bookkeeping department is periodically checked against the estimate to affirm the estimating procedures, and to identify any discrepancies that might show up in the estimating calculation. This information is also used for invoicing the general

contractor for services performed.

Upon completion of the job, a complete review of each job and the estimating procedure used, plus a check of the anticipated cost of completing the installation, is the basis for a discussion between the company controller and C. J. Porter, its president. Any decisions reached on this are passed along to the engineers for future use.

Each job is assigned a number and a description, and all paper work involved in a job, with the exception of blue prints (due to their length and multiplicity of copies), are included in an expansion file jacket. This expansion jacket (purchased from the local stationery stores) contains six divisions.

Material related to the job and the particular phase of its completion is filed according to; 1) accounting; 2) correspondence; 3)

proposal and bill of material; 4) vendor quotes; 5) equipment, shop drawings; 6) purchase orders. This information, filed under general headings, simplifies the location and identification of any particular phase of the job that may require either review or identification for some specific purpose.

Work Methods Made Easy

The company officers have a philosophy based on the theory that, if employees find that everything possible has been done to make their work easier, they will get the most out of the equipment and machines they use. This approach has been used to simplify the fabrication of duct sections.

A flexible fabricating technique that uses power tools, conveyor, and portable work tables is one example of the company's effort

to make hard work easier to perform. Employment of available manpower to the various jobs is the responsibility of Karl Byboth, shop superintendent. He handles a large order for ductwork in the following manner.

Shearing Done First

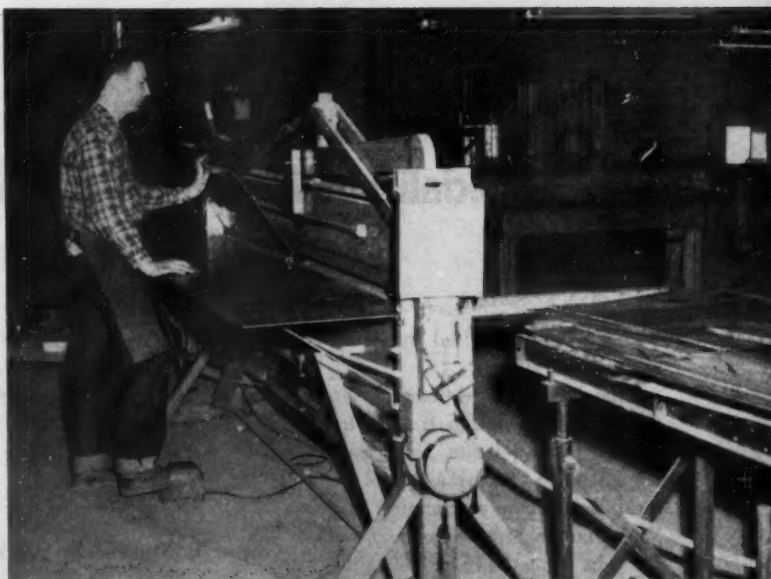
A copy of the shop order is given to the shear operator, who shears the necessary flat sheet size and stores the sheet on a portable table. When a quantity of sheets have been readied, the table is moved to the second operation which is the power notcher. Here each sheet is notched on one side and then flipped, and notched at the opposite end of the section.

The notched sheet is laid on a gravity type roller conveyor. As the notched sheet slides down the conveyor, it is guided through either a standing seam flanger, if it is to be joined in this manner, or through a Pittsburgh lock forming machine, by one of the shop mechanics.

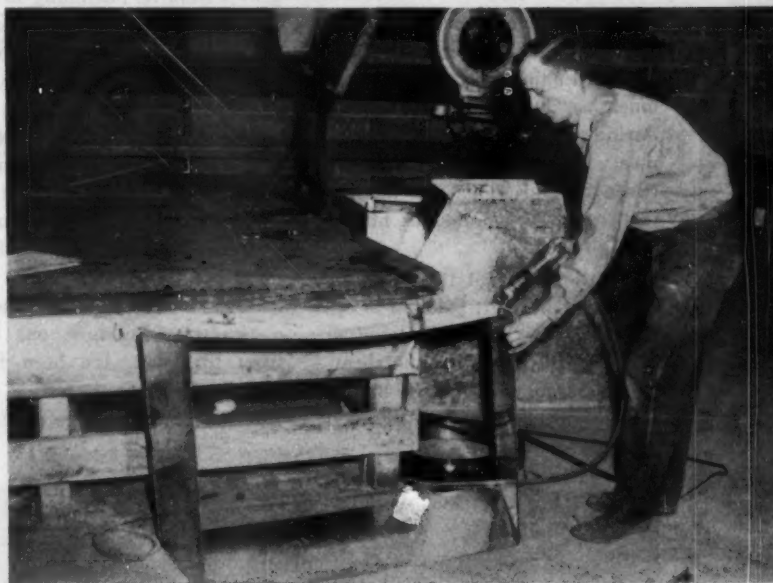
Portable Machinery Used

Both the power-operated standing seam flanger and lock former machines are fastened to rollers that are set in steel tracks, permitting either or both machines to be drawn into position for use, or to be pushed back about 18 in. from the conveyor should they not be needed for a particular operation.

When the lock or seam forming operation has been completed, the flat sheet continues on the gravity conveyor to its termination point—a table where it is picked up by a mechanic operating a power duct former. This machine brakes the duct for either cross braking, if this is required, or along the horizontal seams to form the duct. The formed duct section is then placed on a four wheel truck where it is rolled out of the sheet metal shop through a covered passageway to an assembly area about 60 ft away.



AT THE END of the conveyor, the flat sheets are formed into duct sections at a power operated duct former



ASSEMBLY is completed in a separate room to remove the noise created by pneumatic lock forming hammers

In the assembly area, the duct sections are assembled and seamed, after which they are weighed. The weight is recorded on the shop drawing which has followed each

piece through the shop. One of the advantages of assembling the duct in a room outside of the general shop area, is to remove the distraction caused by pneumatic

continued . . .

Specialized Operation Increases Shop Output

seaming hammers used in the assembly operation.

Completed duct sections and fittings are loaded into trailers for hauling to the job site. Small trailers (21 ft in length) are used for local and nearby community jobs. When larger orders are required for jobs located 175 to 200 miles away, a larger trailer is rented. In this way transportation costs are kept to a minimum by moving large quantities at a time.

Technique Speeds Production

This technique of assembling duct sections has enabled Utility Sales & Engineering to produce as much as 30,000 lb of ductwork during one 8-hour day with twelve men. The metal used varies between 20 and 24 ga and the 30,000 lb included numerous fittings of all types.

The flexibility of this assembly technique makes it possible to operate with one mechanic doing all of the operations from the shearing operation and through the assembly. Or with the use of two men

on the shear, one is in charge of notching, while others are doing seaming and forming operations; the others remaining are working on layout, fabrication, and assembly of duct and duct fittings.

Company Started in 1946

Most of the techniques followed by the company are an outgrowth of a continuous investigation of operating procedures that have taken place as the company has grown from its beginning in 1946 with four people. The company now employs about 60 mechanics (both in the shop and at the job site), four planners and one field engineer, and an office staff of four girls, the controller, and president. The company grosses about \$1,750,000 million annual volume.

The shop utilizes 6600 sq ft and the office uses another 1500 sq ft floor area. The office is located in a two story building, one block from the shop. It's been found that by locating the office away from the shop, that the routine of

written orders is followed more closely. When the shop and office are joined in one location, verbal orders often tend to be substituted for written instructions.

The management believes that their fabricating facilities will be used to produce finished ductwork for small contractors in other areas who will complete the installation. President C. J. Porter says, "Increased competition with the industry indicates that there may be a trend toward specialization to cut travel and subsistence costs. This arrangement will permit local contractors to obtain contracts and purchase finished duct in the same manner as they purchase equipment. This should result in more efficient operation for all."

Some of the nationally known buildings for which mechanical contracts have been handled by Utility Sales & Engineering are the new \$18 million Mayo Clinic in Rochester, the IBM factory in Rochester, the new Northwest Airlines office building in St. Paul, and the Kahler Hotel in Rochester.



WHEN THE ORDER has been received, a follow through by C. J. Porter is standard procedure with the engineering staff. He checks detail shop drawings, equipment location, etc. with Kenneth Everson (left)



TOOLS FOR PROCESSING "instant potatoes" consist of a trough and conveyor screw of 14 ga stainless steel sheet with a grate of 1/4 in. bar stock

When a Customer Needed

A Stainless Steel Ricer in a Hurry

**By Wm. C. Schmitt
Wm. J. Schmitt Inc.
Rochester, N.Y.**

**... he turned to his
sheet metal contractor, who saved
him time and money**

"GIVE YOUR CUSTOMER the best possible service" is a good policy for any company. This is especially true in the sheet metal contracting industry. All too often, a sheet metal shop will turn down work of unusual nature because it is too complicated or not in line with the type of work the shop is set up to do. If a sheet metal contractor will

follow a policy of giving every customer his best service, he will find that many unusual jobs can be handled with ordinary shop tools, and at a double profit — the good will of a satisfied customer and the monetary consideration realized.

A case in point was a recent order from a customer operating

a food processing plant. His requirement was two 14 ga stainless steel screw conveyors for processing cooked potatoes to be dried and marketed as instant potatoes. Standard conveyor units could have been purchased from a factory, but the delivery date promised by the factory was a prominent factor that influenced the



processor to come to the sheet metal contractor, who, when he learned the circumstances, offered delivery in one week.

Pattern Layout Used

The two stainless steel units used the same arrangements and varied in external dimensions only in length (Fig. 1). One unit was 9 ft 6 in. long, and the other 4 ft 6 in. long. The screw (Fig. 2) was fabricated according to the pattern layout found in most standard sheet metal text books. Care should be taken, however, to be

continued . . .

How a Stainless Steel Potato Ricer Is Made



SKILL OF the sheet metal worker is demonstrated in the fabrication of this screw

assured that the pattern that has been developed is correct and will produce the required screw effect.

The main problem is to form each segment of the screw properly so as to obtain the correct pitch, and only the skill of a good mechanic will lead to the correct solution. The developed line should be laid along the surface of the screw stem, so as to indicate exactly where the screw surface will contact the stem.

Formation of the screw blade is difficult to fabricate from any sheet metal and is even more difficult when stainless is used because there is so little "give" in the material. In this case, the spiral segments were cut from 14 ga stainless sheet, formed and welded to a 2 in. OD welded stainless steel tube.

Designed for Ricing

The screw was designed to push hot cooked potatoes along the conveyor, mashing them before they drop through a chute to the floor below for the next operation in the process. The mashing (or ricing, as it is known in the industry) was accomplished by fabricating a $\frac{1}{4} \times \frac{1}{2}$ in. stainless steel bar into a grate which was placed at the

outlet end of the conveyor. The $\frac{1}{4} \times \frac{1}{2}$ in. bar was friction cut to the correct lengths. (These varied because of the conveyor shape and the opening through the grating for the screw stem, Fig. 3).

After grating, the potatoes fell into a square to round transition (Fig. 4) where they were fed into a round chute to the floor below where the drying process was accomplished.

The service given this customer, at a time when he needed it most, resulted in another order within two weeks for some standard sheet metal products. When asked if the screws were in operation, the sheet metal contractor was told that they had been installed and were working exactly as planned — in fact, the ricer was working better than expected.

What about the cost to the customer and the profit to the sheet metal contractor? The customer reported that the sheet metal contractor's bill was less than the price he would have had to pay if the screws had been purchased from the factory. The sheet metal contractor reported a satisfactory profit and another satisfied customer. In this case, it could be said that service to the customer "brought home the potatoes."



"RICING" of cooked potatoes is made possible by the grate at the end of the screw

NEW

FROM

bryant



SUPER COMPACT 2-TON AIR CONDITIONER PRICED FOR TRACT HOMES AND APARTMENTS

This new Model 557 represents the essence of Bryant's long years of research and successful experience in central air conditioning. Along with its companion Model 563, it puts you in a prime position to bid and get these close margin jobs at a profit.

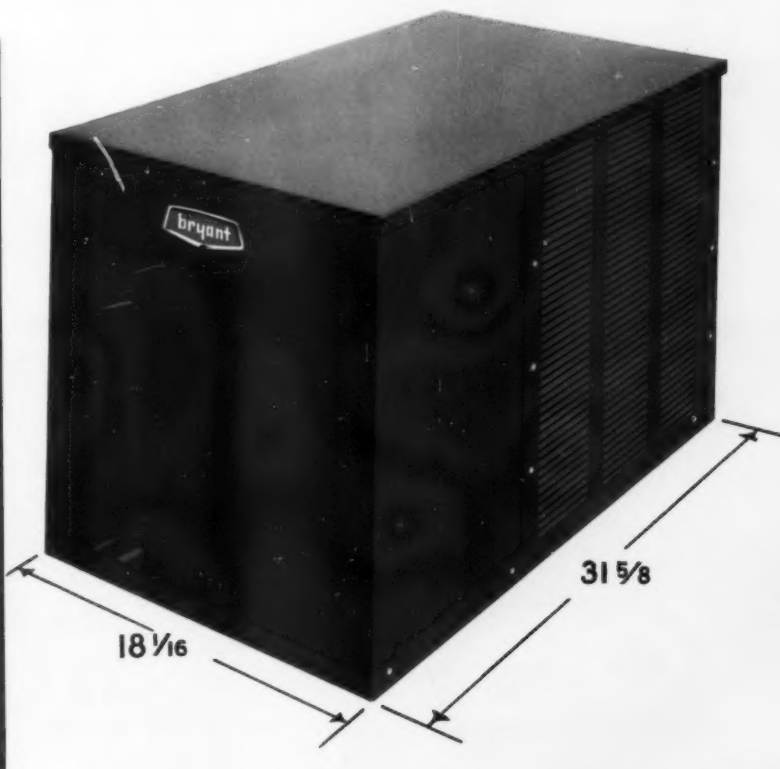
AIR CONDITIONS up to 1200
square feet of living space.

EASY TO HANDLE on the truck,
on the job.

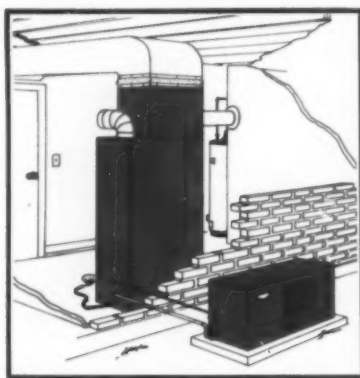
**EXTREMELY SIMPLE
INSTALLATION** All you do is
uncoil the 8 feet of permanently at-
tached tubing, set the units in place and
connect the wiring. Running, cutting,
soldering of refrigeration lines, and
purging is eliminated.

MODEL 557 comes with 8 feet of
permanently attached tubing.

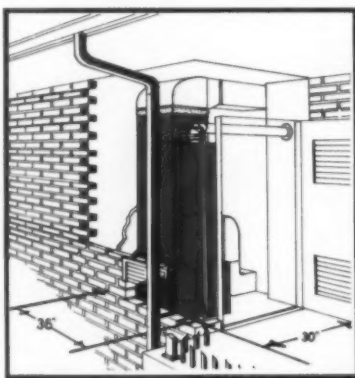
MODEL 563 is the same unit
without tubing attached.



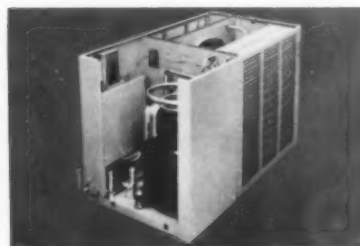
NEW SPACE-LABOR-MONEY SAVING DESIGN



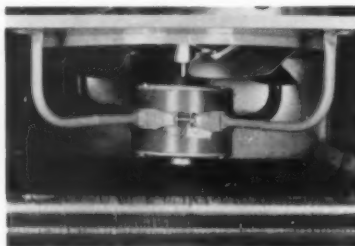
FOR HOMES AND GARDEN APARTMENTS. This view shows how unit can be placed *within 4 inches of outside wall* with no sacrifice of operating efficiency. Extended tubing permits fast, fool-proof installation.



FOR APARTMENTS. This view shows condenser, furnace, cooling coil and ducting housed in an outside closet only 30" x 36". Note how condensate drains directly into downspout.



QUIET OPERATION. Compressor is housed in sound-proof compartment for quiet operation, and large condensing surfaces permit lower, quieter fan speeds while maintaining full rated cooling capacity.



EFFICIENCY INCREASED. Placing motor between the fan and the coil sets up a swirling action of the air that "scrubs" the coil surfaces increasing heat transfer efficiency. Also, the motor is better protected.

2 TO 7½-TON UNITS TO FIT YOUR NEEDS. You can make up some sixty different combinations of Bryant condensers and coils to meet almost any conceivable need. See our new catalog.

SOLID LOCAL SUPPORT in layout, sizing and supervision of jobs by factory trained air conditioning specialists is available through your local Bryant Distributor or Factory Branch.



COMPLETE HOME COMFORT CORE The cooling coil, condensing unit and 80,000 Btu furnace are combined in a compact yet easy to service package. In stack-on installation, furnace opening is provided in condenser cover.

USE BRYANT'S Home Comfort Core Merchandising Plan (all ready to use) to get the inside track on and close those tough jobs. Your Bryant Distributor or Factory Branch has all the facts.

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BRYANT MANUFACTURING COMPANY • Indianapolis 7, Indiana



Anthony Chronis, (left) President, Lisle Electric, Inc., Lisle, Ill. talking to Al Jones, his Dodge Representative on a job site.

"Dodge Reports saved our business in its early days ...today, they give us 1/3 of our volume"

"Shortly after I took over this business, we lost an account that represented 50% of our volume," says Mr. Chronis. "We had to round up a corresponding amount in a very short time in order to remain in business at all. We did it through Dodge Reports which we had never used before."

"For the first three months of our subscription," Mr. Chronis explains, "we conducted an intensive promotional campaign based on Dodge leads. It was so successful that after those first three months we had all the business we could handle."

Mr. Chronis began with three men and three trucks, and restricted his contracts to residential construction. "Today," he says, "we have 10 men, five trucks and a trailer. We handle stores, houses and apartment buildings and are beginning to establish our reputation in electrical heating work, engineering and quality custom installations. Last year we completed more than \$160,000 worth of contracts, \$50,000 of which we picked up solely through Dodge information."

Mr. Chronis goes through each day's Dodge Reports himself, and carries the ones he wants to bid on in

his car. When he passes a prospect's site, he says, "I stop the car, walk through the mud and see the contractor on the spot. That's where I can sell our services, because Dodge Reports have told me all I need to know about the job. And, whenever our name appears in Dodge Reports to show that we've been awarded a contract, we feel that it's the best advertising our company can get anywhere."

Dodge Reports can help you get the new business you want, too—for only a fraction of the profits they'll help you earn. Send the coupon for further details. Or, consult your telephone directory for the Dodge office (in over 80 principal cities) nearest you.

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What is a Legal Signature to a Contract?

Under certain conditions, courts have ruled that a hand written signature is not required

AGAIN AND again the question has been asked of the courts, "What is a signature?" In no instance, except in circumstances governed by a state statute, has the signing of an order, contract, or other paper been restricted to the writing of the signer's name by either pen or pencil.

Several years ago, a will was presented to a court for probate. At the end of the will, following, "In witness whereof I have hereunto subscribed my name and affixed my seal," were the words "Left Hand," followed by four finger prints. Against the objections of the widow, to whom the man had made this reference in his will, "I leave absolutely nothing and make no provision for any relatives, and especially for my wife," the court accepted the paper as a will duly signed and executed.

Court Defines Signature

In this decision it was said of signatures and marks that are accepted, such as those four left hand finger prints, "The term 'signature' includes any memorandum, mark, or sign written or placed upon any instrument or writing with the intent to execute or authenticate such instrument or writing."

In another instance in the same

state a court held, "Generally a signature, if adopted as such, may be printed, lithographed, or typewritten as well as written."

In one of the southern states in the year following this decision, the same question of what makes a signature was before the Supreme Court of that state. By a statute, the county treasurer was allowed a dollar for every tax warrant he signed. In doing so, he had used a rubber stamp that was a facsimile of his actual signature.

OK Stamped Signature

The county refused to pay this dollar allowed by the statute contending that the use of a mere rubber stamp facsimile of his signature was not a signature, and that, in so doing, he had not signed these warrants within the meaning of that law.

"In our opinion," said the court in that case, "the stamping of the warrant by the treasurer with his facsimile or autograph signature stamp was a sufficient signing, and, in law, is the signature of the treasurer."

"The general rule as to the mode that one may adopt in affixing his signature is: The signature may be written by hand, printed, stamped, typewritten, engraved, photographed, or cut from

one instrument and attached to another.

"A signature lithographed on an instrument by a party may be sufficient for the purpose of signing it, and it has been held or recognized that it is immaterial with what kind of instrument a signature is made."

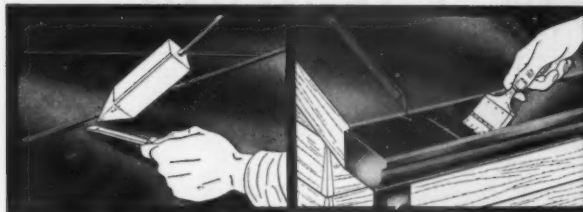
"A signature has also been defined as the act of putting down a person's name at the end of an instrument to attest its validity, any mark or sign made on an instrument or document in token of knowledge, approval, acceptance, or obligation; also whatever mark, symbol, or device one may choose to employ as representative of himself."

Indicates Intention

"Stated in greater detail, in legal contemplation, 'to sign' means to attach a name, or cause it to be attached, by any of the known methods of impressing the name on paper with the intention of signing it."

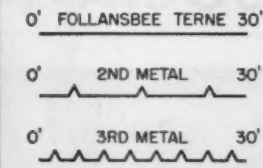
Next month, the Artisan will consider further basic legal requirements which constitute the binding powers of contracts—including assumed and imposed obligations, enforceable agreements, aspects of promises, considerations, and performance, and legality of unwritten and unsigned contracts.

FOLLANSBEE TERNE . . . the roofing metal you'll like working with!

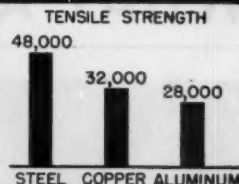


Terne forms a perfect soldered joint . . . The lead in Terne's coating is a perfect partner for solder, and properly soldered joints eliminate the possibility of leaks in drainage areas, around chimneys, doors and windows.

Follansbee Terne needs no special treatment . . . Forms a Perfect Bond with Paint . . . Follansbee Terne needs no special treatment before being painted and its lead-tin coating is an ideal surface to receive paint.



With Terne, expansion joints are usually not necessary . . . Terne expands and contracts less than other roofing metals and therefore can be installed in greater lengths before expansion joints are necessary.



Terne is stronger than other roofing metals . . . Follansbee Terne is lead-tin coated steel, and the inherent strength of steel makes Terne stronger than any other roofing skin material.

YOU'LL LIKE THE WAY IT WORKS... IT SOLDERS... IT TAKES PAINT...



Follansbee Terne, because of its strength and durability, has always been in great demand as a roofing and weathersealing metal. But even though it is strong and will last a lifetime, Terne is a roofing material that sheet metal contractors like to work with . . . and for good reason—

Follansbee Terne is **ductile** . . . and easy to work, assuring the contractor that he can install it with a minimum of labor cost.

Follansbee Terne forms a **perfect bond with paint** . . . and needs no special treatment before being painted.

Follansbee Terne forms a **perfect soldered joint** because of its lead-tin coating.

You'll like working with Follansbee Terne too. If you would like additional information, use the coupon below. Send for our new book which has been prepared especially for the sheet metal contractor.

A-5

Gentlemen:

Send me your free book on Follansbee Terne.


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 **FOLLANSBEE STEEL CORPORATION**
Follansbee, West Virginia

WHAT ASSOCIATIONS ARE DOING



DETAILS of the "Michigan Plan" are reviewed by officers of the association (l to r) Alfred W. Keats, president; Dee Cramer, director; and Joseph Sloane, vice president

'Michigan Plan' Unites Local Associations

Salesmen's auxiliary dissolves, permitting members to affiliate with statewide association through membership in local groups

"THIS ASSOCIATION dedicates its efforts to marshaling every possible influence for the protection and advancement of the heating,

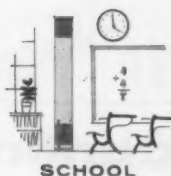
air conditioning and sheet metal industry; the persons engaged in it; and the public it serves." This was how Harold Bowie, director,

Michigan Heating and Air Conditioning Association, described the primary objectives of the associa-

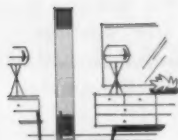
(Continued on page 92)



WORK SHOP SESSIONS at the Michigan association's convention gave delegates an opportunity to discuss 14 individual functions of management. Summarized reports from each session were made on the convention floor so that ideas developed at each table could be passed along to all in attendance



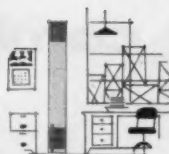
SCHOOL



HOME



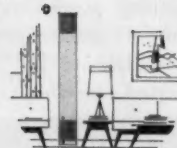
OFFICE



WAREHOUSE



BEAUTY SHOP



WAITING ROOM



FAR BETTER
THAN ORDINARY
GRAVITY
WALL HEATERS

COSTS LOTS LESS
THAN CENTRAL
FORCED-AIR
HEATING SYSTEMS

RIGHT IN THE MIDDLE WHERE THERE'S MONEY TO BE MADE

- ★ It's vented for safety. (Vent is concealed.) ★ Hides in the wall, takes no space at all. (Only 14" wide by 10" deep.) ★ You offer floor-level heat in one, two, or three directions.
- ★ Only a small grille shows on one side if you use fully-hidden installation method. ★ Installs simply—the simplest, by just putting it against a wall. ★ Offer a choice of single or two-speed models.

You can bet DAY & NIGHT has no special ax to grind in this area. DAY & NIGHT makes the best of both other types of heating equipment. But there's that fertile market in between where you can make a healthy profit. It's the market that won't settle for "just heat" in a merely adequate, low-cost unit—yet can't (or won't) pay for the long-run ductwork required by central forced-air systems. Where price is the prime consideration, you can sell the standard, single-speed model. The two-speed FA Panelray model should be your big seller. Its *normal* setting holds operation to a low flame, low speed level, stretching use of fuel and power over longer period for more even temperature. *High* setting allows burner and fan to respond to thermostat regulation for full-speed, full-flame operation.

It fits your middle market perfectly!

IT'S THE NEW

DAY & NIGHT 60 FA PANELRAY

For complete installation specifications, write to:

DAY & NIGHT MANUFACTURING COMPANY 855 ANAHEIM-PUENTE ROAD, LA PUENTE, CALIF.

WITH THE ASSOCIATIONS

(Continued from page 90)

michigan convention continued...

tion's program, known as the "Michigan Plan," to delegates attending the 50th annual convention in Detroit.

Coverage of the Plan

"The fortunes of the manufacturers, the wholesalers, the installers of heating and air conditioning goods, and the suppliers of fuel and/or power to activate installations, are all inseparably bound together. Therefore, all representatives of these industry segments, as well as of any other groups which in any way serve this industry, are invited to become full, active members of this association, privileged to participate in every activity and eligible to hold any office," said Jay Biddle, secretary of the association, in describing the coverage offered by the "Michigan Plan."

Local Groups Take Action

Target date for putting the plan into effect, as announced by Alfred W. Keats, association president, is September 1, 1961, or as soon thereafter as is practical. The exact date that the reorganization will take place is based on action to be taken by local associations throughout Michigan. These associations must revise existing bylaws to permit affiliation with a statewide group and to accept as members persons other than dealer-contractors.

Must Belong to Local Group

The "Michigan Plan" calls for every member of the state association to be a member of a local association, although not necessarily of the association nearest to him. Thus, manufacturers' rep-

resentatives, wholesalers, etc., will affiliate themselves with local associations. Because this arrangement eliminates the need for a salesman's auxiliary of the state association, the auxiliary voted to disband so that its members might join local groups in accordance with provisions of the "Michigan Plan."

Will Perform These Services

Under the plan, the state association will receive dues collected by local associations and will perform the following services for its members:

- Maintain a card file of speakers, programs and films; products available from manufacturers and distributors, etc.
- Maintain a library of publications, laws and digests, legal actions and decisions, etc.
- Tabulate union agreements, useful statistical material, etc.
- Offer health and accident insurance and investigate other types with a view to providing savings or better coverage.
- Promote sound trade and credit practices including terms of sale, credit interchange, collection helps and sound distribution policies.
- Promote a state license law and basic code.
- Promote a set of standards for installation.
- Produce business forms, procedure outlines, etc.; standardize terminology.
- Work for good inter-industry and public relations.
- Provide representation before governmental agencies and other associated groups.
- Prepare a monthly bulletin or news release for distribution to all members.
- Arrange and handle the annual

convention, annual meeting and special area meetings.

- Sponsor an annual short course and others if needed.

Officers to Continue

Officers and directors whose terms were due to expire at the time of the 50th annual convention were elected to serve until the organizational transition has been completed. At that time, an entirely new board of directors and officers will be selected as called for in the new bylaws. Present officers and directors are:

President, Al W. Keats, Detroit; vice president, Joseph Sloane, Lansing; treasurer, Earle Oole, Grand Rapids; secretary, N. J. Biddle, Detroit. Directors are Harold Bowie, Detroit; Leonard Schaafsma, Grand Rapids; Wayne Jackson, Lansing; Dee Cramer, Flint; Harold Guernsey, Kalamazoo; Malcolm J. Cole, Warren; John Colomina, Southfield; and John De Haan, Kalamazoo.

Miami Contractors To Help Produce SM Safety Film

LAKELAND, FLA. — David B. Hess, chairman of the Florida Roofing & Sheet Metal Contractors Association's safety committee, has appointed a safety sub-committee to work with the Florida Industrial Safety Division on the production of a sheet metal safety film. Members of the sub-committee are Bill Condermann, Wyley Shepherd and J. W. Keen.

(More association news on page 94)

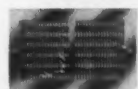
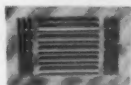


REGISTERS Mate GRILLES-DIFFUSERS

for every AIR CONDITIONING
and HEATING requirement

18
TYPES

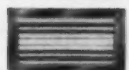
RESIDENTIAL
HEATING and COOLING



Flexible Fin Type
 $\frac{1}{4}$ " or $\frac{1}{2}$ " spacing

13
TYPES

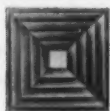
AIR CONDITIONING
COMMERCIAL and RESIDENTIAL
ADJUSTABLE BAR TYPE



Extruded Aluminum Bars
Screw Driver Operated Opposed
Blade Dampers

4
TYPES

SQUARE AND ROUND
DIFFUSERS



Slide Dampers
Multi-Shutter Dampers

61
TYPES

Over 3,000
Listed Sizes

PERIMETER



Flexible Fin Type

Write for
Literature

18
TYPES

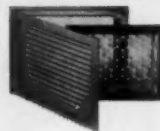
CURVED BLADE
SUPPLY GRILLES



One-Two-Three and Four-Way Diffusion
Opposed Blade Dampers
Multi-Shutter Dampers

2
TYPES

FILTER FRAMES
WITH HINGED GRILLES



High Velocity Type
Flexible Fin Type

4
TYPES

ACCESSORY
EQUIPMENT



Extractors
Volume Controllers
Opposed Blade Dampers

DRY MANUFACTURING CO.
INCORPORATED

P. O. BOX 797 • WINTERS, TEXAS



PANELISTS EMPHASIZE BUSINESS OPPORTUNITIES that can mean more profit. From left are Joseph D. Wilder, Rogers Toy, Allen Trask, Dennis Monroe and Oz Mutz

Three Keys to Prosperity

... given delegates attending
Southeast Trade Exposition and Conference

THREE KEYS that can be used to open doors to more profitable operation for the warm air heating-summer air conditioning dealer-contractor were given to members of the industry attending the 1961 Southeast Trade Exposition and Conference in Atlanta by panelists Joseph D. Wilder, executive secretary, Sheet Metal and Air Conditioning Contractors' National Association; Allen Trask, chief engineer, International Heater Co.; and O. U. Mutz, vice president, sales, Peerless Corp.

'Reduce Service Calls'

Panelists suggested that dealer-contractors review their business

practices and concentrate on steps that offer maximum improvement possibilities. Mr. Trask explained how a program to reduce service calls on summer air conditioning equipment leads to more profit and builds a good reputation among customers.

He discussed the value of a high capacity evacuating pump for removing air from newly installed cooling coils, tubing and condensing units. Mr. Trask recommended that the evacuating pump have a capacity of 20 microns and that at least two hours be given to this operation immediately before the charging procedure takes place. Such care during installation, he said, would

mean fewer service calls and better profits as a consequence.

'Boost the Industry'

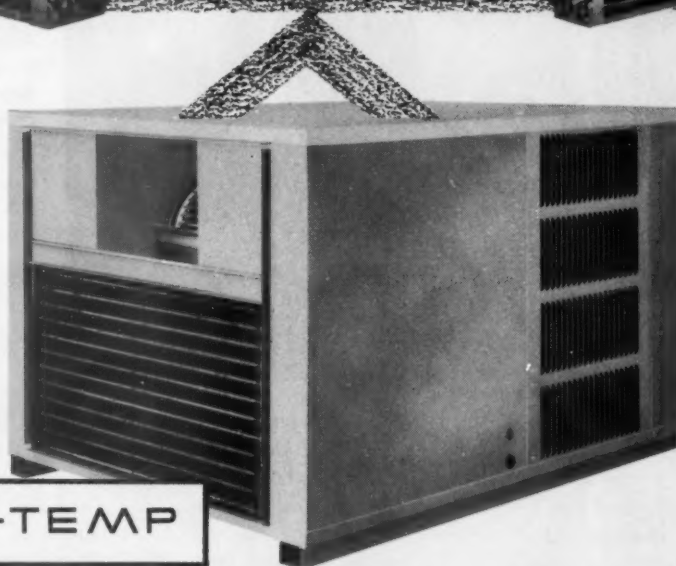
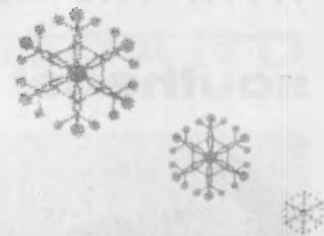
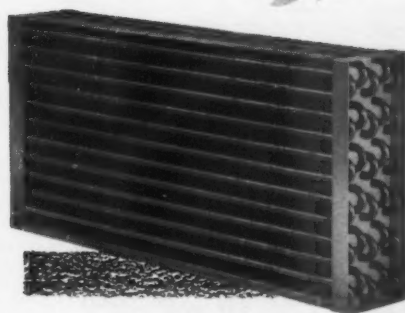
The key offered by Mr. Mutz dealt with well-prepared sales presentations. He recommended that dealer-contractors train their salesmen to boost the industry rather than knock competing products. "Sales presentations should prove to prospects that you have their interests at heart," he said.

Mr. Mutz suggested that dealer-contractors use their homes to give prospects demonstrations of how the industry's products can be used to provide maximum com-

(Continued on page 96)

SOLVED!

THE PROBLEM OF HEAT PUMP COIL BALANCING



WRIGHT-TEMP

...the only **HEAT PUMP** with *Capacitrol Balanced Coil**

*Patent Applied For

Wright-Temp designers have overcome the problem of Heat Pump coil balancing with exclusive Capacitrol Balanced Coil*. Indoor coil automatically adjusts from 3 rows to 5 rows when unit switches from cooling to heating... provides 40% larger coil surface when needed for increased efficiency and greater heat transfer capacity.

You'll like Wright-Temp because exclusive Capacitrol reduces high head pressure cut-out and resulting nuisance calls. Your customers will like Wright-Temp because he gets greater heating capacity at lower operating costs.

As a further indication of quality engineering, Wright-Temp Heat Pumps are designed to meet the extreme demands of Western and Southwestern climates with all units calorimeter rated beyond ARI specified conditions to 115° cooling cycle and 10° heating cycle. This extra broad design range assures that Wright-Temp heat pumps will perform as rated under even the most adverse conditions.

Available in 2, 2½, 3, 4, 5, 7½ and 10 ton sizes... package and split systems... there is a Wright-Temp model to meet your every installation need. All units Underwriters Laboratories Approved.

Recommend and sell Wright-Temp Heat Pumps... you can count on quality.



For complete information write to

WRIGHT-TEMP MANUFACTURING COMPANY

2902 West Thomas Road P. O. Box 11247 Phoenix 17, Arizona

"Creating New Climates for Better Living"

WITH THE ASSOCIATIONS

(Continued from page 94)

southeast trade show continued...



OFFICIAL WELCOME is extended Clark Mock (right), past president of Sheet Metal, Heating and Air Conditioning Contractors' Association of Georgia by (l to r) John A. Nance Jr., Boone Noblitt, James M. Brown and Charles W. Bryan Jr.

fort. Be sure, he advised, to operate the equipment being shown so that the prospect may see for himself the value of good equipment, properly installed. He pointed out that there is no short cut to a quality sale, that the prospect must be sold on the value he will receive.

'Train Employees'

Training of employees as a key to achieving better installations and more profitable sales was

suggested by Joseph D. Wilder, who described in detail SMAC-NA's journeyman training program. He reported recent revisions in the program and described efforts that will be made to have local training programs altered to coincide with the new program.

Under the revised program, apprentices will be taught to rely upon their knowledge and ability to solve sheet metal fabricating problems, will not be asked to memorize — and later attempt to

recall — the method taught as a solution to a specific problem. This approach to utilizing the individual's capabilities will contribute to the industry's over-all effectiveness in the fabricating and installing of new sheet metal products.

Sixty-five booths at the exposition featured displays of sheet metal tools, heating and air conditioning equipment and supplies, roofing tools and materials, and examples of apprentice craftsmanship.

Research Association Discusses Estimating

HIGH POINT, N. C. — A forum on estimating was a feature of the recent management and sales conference sponsored by the Heating & Air Conditioning Research & Development Association. Panelists discussed such subjects as esti-

mating equipment and materials, labor, overhead, and profit.

Conference speakers included Dr. Emol A. Fails, executive secretary of the association, who described "Characteristics of a Good Manager," and Bruce Leister,

vice president of Metal Service Co., Inc., who covered "The Wholesaler's Responsibility to His Dealers." Other speakers discussed "The Sales Process" and "Management Functions."

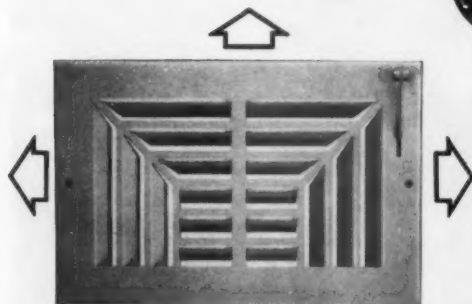
(More association news on page 98)

NEW

from



STANDARD



3-WAY AIR DIFFUSER

designed
to keep quality high . . .
costs low.

can be used in **CEILINGS . . . SIDEWALLS . . . BASEBOARDS**

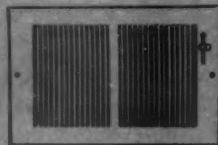
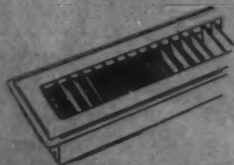
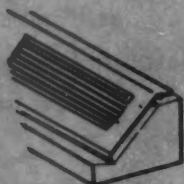
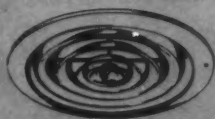
One piece damper control gives instant control of air flow. Eliminates "hot spots," airless areas, drafts. Provides an evenly distributed flow of air.

- * Ideal for heating and cooling
- * One piece face
- * Heavy, rigid, all steel construction
- * Sponge rubber gaskets
- * Standard mounting holes
- * Attractive ornamental grey baked finish.

It's Well Known News . . . Standard Makes The Finest

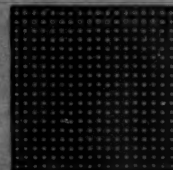
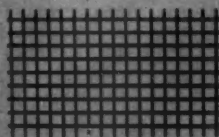
REGISTERS and GRILLES . . .

air diffusers, intakes and returns for heating, air conditioning and ventilating.



PERFORATED METALS . . .

for "custom-covered" enclosures and convectors, air intakes and outlets. All sizes, shapes and patterns.



Standard—renowned for consistent quality, all-around dependability, satisfying economy. Standard products are profitable to sell—time saving to install. Inquire



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MAIL THIS COUPON TODAY!



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Gentlemen: I'd like more news about your

- ☐ NEW 3-WAY DIFFUSERS
- ☐ Complete Line of Registers and Grilles
- ☐ PERFORATED METALS

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY, ZONE, STATE _____

WITH THE ASSOCIATIONS

(Continued from page 96)



OFFICERS AND DIRECTORS FOR 1961 are (seated, l to r): Carl Berry, Bloomington, director; James H. Reuter, Kankakee, vice president; Herbert Drews, Danville, president; John Rubo, Batavia, George Sturm, Macomb, and W. R. Shaw, Jacksonville, directors

Standing, (l to r) are: E. A. Schmidt, Springfield, treasurer; directors Ed. Godlewski, Rockford; Henry Repple, Chicago; Kenneth Rosenboom, Chatsworth; Frank Mehrings, Peoria; Rudy Guenther, Chicago; Paul Schertz, Minier; Tom Novak, Chicago; J. Warner Elson, Peoria; Martin P. Lauerman, Galesburg (reelected secretary); Lou Reining, Chicago; and Joe J. Walter, Ottawa

Hear About the 'Art of Heating and Cooling'

... at Illinois association's
annual convention. Dealer-contractors told
industry must not bypass basic principles

"COMFORT IS MORE than just warmth during the winter, and cooling during the summer. Comfort is achieved only when there is complete control of all the elements related to temperature, humidity, air movement, freshness and cleanliness," said J. Raymond Carroll, professor, department of mechanical engineering, University of Illinois, as he addressed delegates to the 47th annual convention of the Sheet Metal, Air Conditioning and Roofing Contractors' Association of Illinois at Peoria.

Design Each Job With Care

Professor Carroll urged dealer-contractors to approach every job with the attitude that it must be handled with care, and must be designed to achieve the best

possible comfort conditions. If this policy is followed, it will prove to the public that other types of systems providing some form of heating and cooling, but less than maximum comfort, are far less desirable. In the long run, this approach will create public demand for the skill that enters into creating a comfortable home and business environment.

Use of zoned areas was recommended by Professor Carroll, who pointed out that designing good air distribution systems places the dealer-contractor in the position of being an artisan who must continually practice his well-

learned art. Zoned systems serve to counter the problems created by heavy solar loads, large glass areas and large wall areas during the summer and strong wind pressures, infiltration and exposed walls during the winter.

Skill is Necessity

To illustrate the skill of a dealer-contractor in designing a zoned air distribution system, Professor Carroll described an installation in a multi-level house which had been divided into four zones. The dealer-contractor had installed an

(Continued on page 100)



ALL NEW

SELF-CONTAINED AIR COOLED UNITS

Luxaire

Minimizes Installation Costs

High Capacity . . . 23,000 and 35,000 Btu Net!

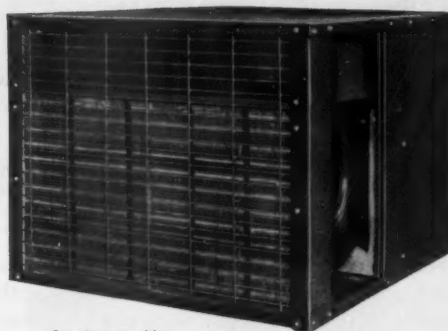
Flush-to-Wall Indoor Installation . . . Unsheltered outdoor installation . . . U. L. Listed for both!

Quiet Operation . . . 2 Centrifugal Blowers . . . each with its own Motor!

Choice of Controls . . . Simultaneous operation of Compressor and Evaporator Blower . . . Independent Operation for Continuous Air Circulation . . . Heating and Cooling or Cooling only!

Available without Evaporator Blower . . . for installations using Furnace Blower for conditioned air circulation!

Accessory Steel Mounting Frame . . . minimizes carpentry work!



Condenser Air
Intake and Discharge . . .
Same End . . . Common Grille



Conditioned Air
Intake and Discharge . . .
Same End . . . Standard Duct Size

An important addition to the complete Luxaire Air Conditioning Line, the new 2 and 3 Ton Air Cooled Packaged Units combine Luxaire's usual extra-rugged construction with unique new installation and performance features — lowering installed costs to the minimum!

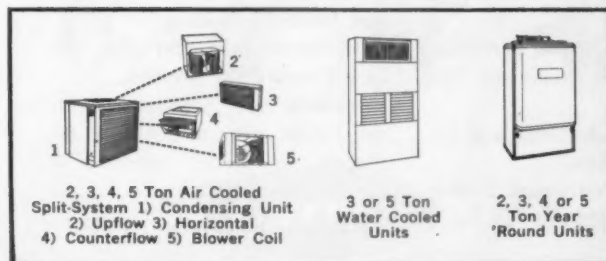
With all of these extra qualities, the prices of the new Packaged Units — like those of the complete Luxaire line — are more than competitive!

Whatever you need for Air Conditioning — 2, 3, 4 or 5 Ton Air Cooled Split-System Units for Upflow, Counterflow, Horizontalflow or Air Handling installations; 3 or 5 Ton Water Cooled Units; Year 'Round Units; Gas, Oil or Electric Furnaces with extra blower capacity built in — you get the same extra qualities at lowest installed costs!

You need not choose between excellence and a low price, because Luxaire gives you both!

See your Luxaire Distributor, today, and get the competitive price — without the penalty of excessive inventory!

The C. A. Olsen Manufacturing Co., Elyria, Ohio



WITH THE ASSOCIATIONS

(Continued from page 98)

Illinois convention continued...



SALES OPPORTUNITIES in electric air cleaning and metal roofing were described by Henry Kurtz, Minneapolis-Honeywell Regulator Co., (left) and Tom Boyd, Follansbee Steel Co. They were introduced by director Ed Godlewski

electric heating element in each branch duct, controlled by a thermostat located in the area served. The system included a packaged blower, filter and cooling coil assembly, a humidifier controlled by a humidistat, and two ventilator fans controlled by a reverse acting humidistat that introduced outside air when interior humidity conditions exceeded the seasonal recommendations.

Must Sell Comfort Value

Systems of this type cannot compete in price with stripped down systems, but neither can

stripped systems compete comfortably, because they can offer only warmth or cooling, as the case may be. Thus the heating-cooling dealer-contractor, in addition to possessing the skill needed to design a system that will meet the needs of his customer, must also be capable of dramatizing the comfort value of a good heating or cooling system.

These points were emphasized by other speakers participating in the convention program. The subject of air filtration was covered by Henry Kurtz, Minneapolis-Honeywell Regulator Co.; humidification by George Boeddener,

National Humidifier Manufacturers' Association; controls by Thomas Ingersoll, Robertshaw-Fulton Controls Co.; and electric heating systems by Walter Kothrade, Mueller Climatrol. Sheet metal contractors' interests were served by Walter Stewart, Central Steel & Wire Co., who covered copper roof flashing and Russ Seiple, Republic Steel corp., who discussed roof drainage equipment. Tom Boyd, Follansbee Steel Co., told about "Terne Metal Roofing," and Ray Guenther, Accurate Sheet Metal Mfg. Co., showed films illustrating ventilating hood design.

OHI Presents Service Course

ST. JOSEPH, MICH. — An oil burner operation and servicing course was presented recently at the St. Joseph (Mich.) Public High School by the Oil Heat Institute of Western Michigan in cooperation with the Oil Heat Institute of America. Classes were held two nights a week over a

period of five weeks. Subjects covered were:

- Nozzles and Nozzle Servicing.
- Burner Pumps, Tanks and Piping.
- Combustion Chambers and Installation Practices.
- Combustion Instrument Testing and Draft.

- Domestic Oil Burner Controls and Control Servicing.
- Operation and Servicing of Low Pressure Oil Burners.

Students who graduated from the course with a grade of 80 percent or better received a diploma from OHI.

(More association news on page 102)

In mine and tunnel ventilating work, the speed and ease of making a Carrier Spira-Pipe installation for permanent or portable systems save both time and expense.



For material handling as in grain elevators, rice and flour mills, and scores of similar applications, Carrier Spira-Pipe and fittings are the simple low-cost answer.



Many applications are found in dust collection systems or for conveying hooded exhaust smoke and fumes from grinding, welding, other industrial processes.



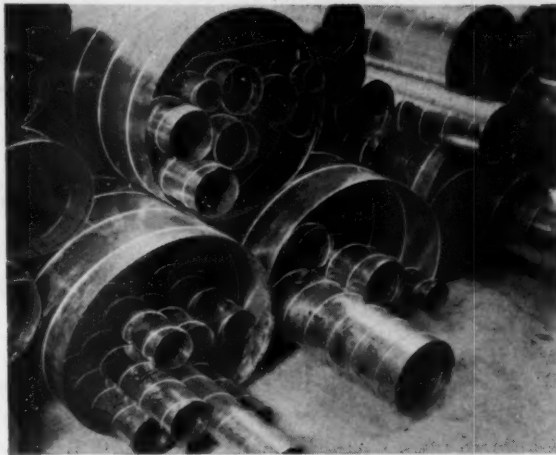
As forms for concrete pillars, posts and piles, Carrier Spira-Pipe speeds construction projects and is so economical to use that it may be left in place as finished work.



LOOK HOW MANY WAYS YOU CAN USE CARRIER SPIRA-PIPE AND FITTINGS

On all types of air distribution systems and scores of material handling jobs, you can eliminate costly layout time, shop and job-site fabrication by using Carrier Spira-Pipe® and fittings. Fabricated from zinc-coated steel, copper and other metals, Spira-Pipe has a 4-ply lockseam construction that provides exceptional strength and rigidity. Available in lengths up to 20 feet and in 20 diameters from 3 through 32 inches—any fractional diameter also available on special order. Weighs but a fraction of other types for the same duty. Easily cut on the job.

To simplify system layouts and reduce job-site assembly and fabrication costs, standard Carrier fittings include all types and matching sizes. Carrier field shops in New York, Philadelphia, Atlanta, Los Angeles, Chicago, Dallas and Toronto provide fast, convenient service. For information write Carrier Air Conditioning Company, Syracuse, New York. In Canada: Carrier Air Conditioning Ltd., Toronto 14.



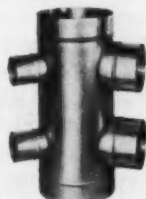
Die-formed elbows in seven sizes supplement the complete line of standard fittings offered for each diameter of Spira-Pipe.



Die-formed elbows

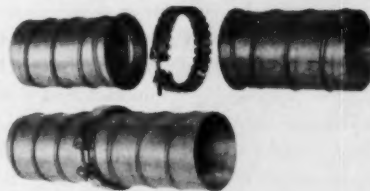


45° Y



135° two-branch cross

Carrier "Quick-Connector" Fittings clamp pipe together in minimum time, provide a positive airtight seal, permit quick disassembly.



Carrier

Air Conditioning Company

WITH THE ASSOCIATIONS

(Continued from page 100)

SM Groups Urge Standardization Of Trade Practices at CSI Meeting

ST. PAUL — Standardization of trade practices and how this would improve quality of work and service on jobs in the field was discussed by Roger Meyer, president of Dayton's Bluff Sheet Metal, Inc. of St. Paul, at a recent meeting of the Construction Specifications Institute.

Mr. Meyer, representing the Sheet Metal and Roofing Contractors Association of Minnesota as well as the Air Conditioning & Heating-Roofing & Sheet Metal Contractors Association of St. Paul, said that in establishing a set of standards all of the best ideas and methods currently in use should be assembled and reviewed. After compilation, he pointed out, the standards would have to be constantly revised and brought up to date as new materials and new methods of application come into use. He noted that the Sheet Metal and Air Conditioning Contractors' National

Association, recognizing the need for minimum standards in the sheet metal industry, has published a book entitled "Duct Manual and Sheet Metal Construction for Ventilating and Air Conditioning Systems," which is now available to mechanical engineers through the headquarters office of the Minnesota sheet metal association.

Tom Burniece Jr., president, Burniece's, Inc., Minneapolis, also acted as a representative for the state association as well as the St. Paul group. Mr. Burniece discussed "Separation of Work to Conform to Trade Practices and Separate Contracts."

Short Courses Well Attended

CLEVELAND — Men from seven states attended the warm air heating and air conditioning short course given recently at North Carolina State College. This was the fifth consecutive year the course has been presented at North Carolina State, and according to the National Warm Air Heating and Air Conditioning Association, attendance has increased about 15 percent every year.

The Oklahoma State University short course, held at Stillwater, Okla., was also well attended, according to NWAHACA, who reports an enrollment of 57 heating men. The Oklahoma course featured a session on dealer-contractor management in which the association's "Management Reference Guide for Dealer-Contractors" was used as a text.

NHAW Completes Survey on Salesman Compensation Plans

COLUMBUS — A survey of members on the subject of company compensation policies for full time outside salesmen was recently conducted by the North American Heating & Airconditioning Wholesalers Association.

At least three out of four of the member wholesalers responding provide fringe benefits, according to W. R. Bull, NHAW executive director. Seventy-five percent furnish hospitalization, 67½ percent provide life insurance, 54 percent have a profit sharing plan, and 27 percent have a pension plan.

In the method of recruiting salesmen, 59 percent of the respondents said they use newspaper advertising, and 46 percent look to employment agencies in addition. Thirty-one percent use formal testing as an aid in salesman selection.

The average normal training period for a salesman was indicated as six months in the office, four months in the warehouse and one month with another salesman.

Outstanding Business Sessions Feature Alabama Convention

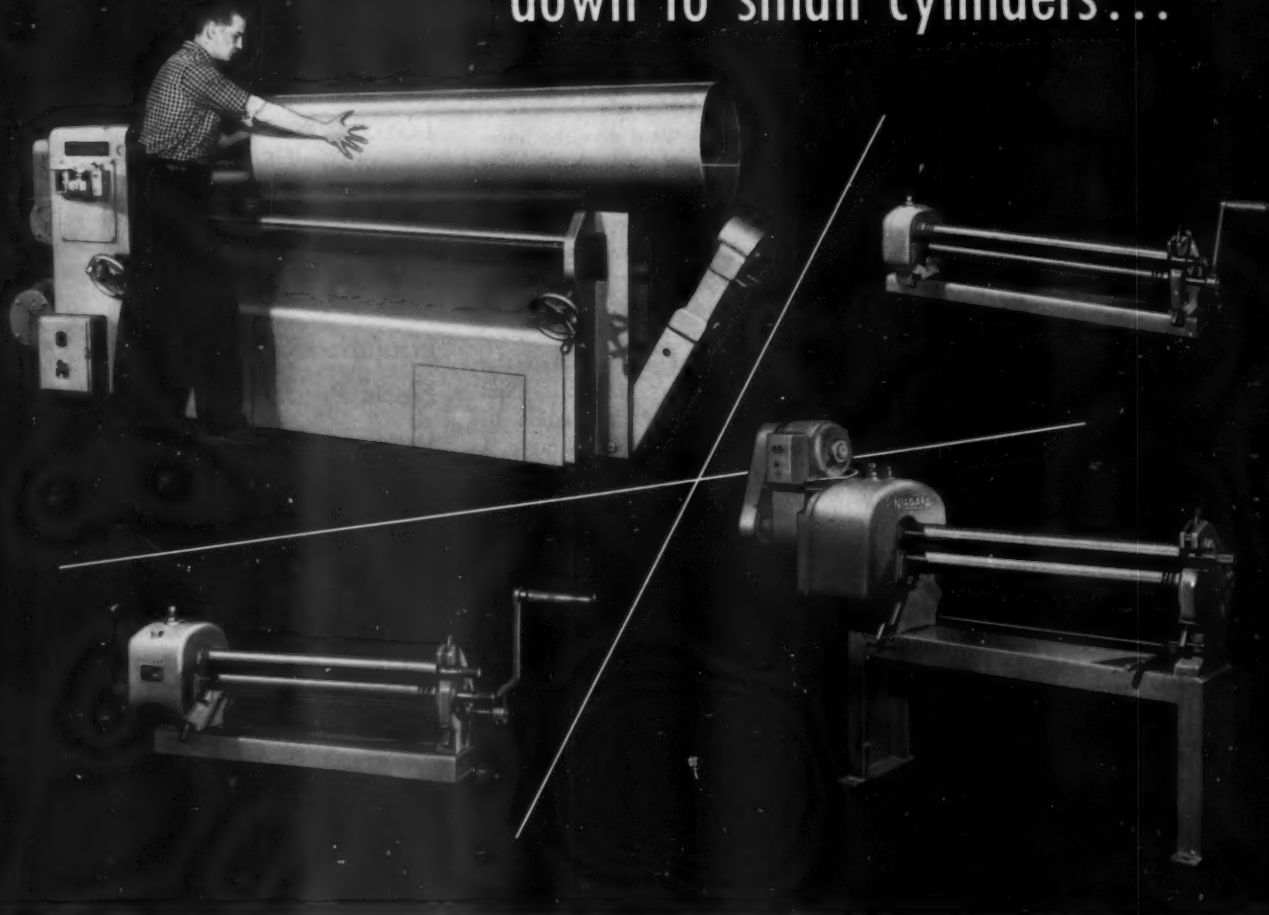
BIRMINGHAM — "New Trends in Electric Heating," "Aluminum in the Sheet Metal Industry," and "Absorption Air Conditioning" were among the subjects covered at the recent convention of the Roofing, Sheet Metal, Heating & Air Conditioning Contractors Association of Alabama. Also discussed were "Current Trends in Specification Writing," "Sources of Financing" and "Material Men's Liens." Entertainment included a cocktail hour, banquet, and a "Las Vegas" party.

Name Secretary For Jacksonville (Fla.) Sheet Metal Group

LAKELAND, Fla. — Robert H. Munsie has been named executive secretary of the Jacksonville Roofing & Sheet Metal Contractors Association. Mr. Munsie, who will serve the group in a part time capacity, is also executive secretary for the Jacksonville chapter of Associated General Contractors.

(More association news on page 104)

From large tank segments
down to small cylinders...



Niagara Slip Roll Formers can turn out better work faster, at greater profit

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WITH THE ASSOCIATIONS

(Continued from page 102)

Employees Study Aims of Silver Shield

KALAMAZOO—Programs designed to acquaint employees of member companies with Silver Shield objectives were recently launched by the Indoor Comfort bureaus of Kalamazoo and Oakland (Pontiac), Mich. Glen Rynbrand, an officer of the Kalamazoo bureau, explained that all employees on his payroll are regarded as salesmen, even though many of them never come into direct contact with a prospect or customer. Mr. Rynbrand says that the two bureaus are sponsoring educational programs of this type, "so that any employee will be able to describe Silver Shield to friends, prospects, or customers."

Discuss Home Buyers' Views at Toronto

TORONTO — What does the home buyer really want in heating or air conditioning? What does he get now? Why settle for minimum standards? How can a heating dealer-contractor prove quality to today's home buyer?

These were questions discussed at the recent convention of the National Warm Air Heating and Air Conditioning Association of Canada by a panel consisting of a magazine editor, a realtor, a representative of a consumers' association and a builder.

Other speakers discussed "What's New in Summer Air Conditioning?" and "What's Happening in Electric Heating?"

Florida Association Gets New Members

LAKELAND, FLA. — The Roofing & Sheet Metal Contractors Association of Florida reports that six new members have recently joined the association, bringing the membership total to 137.

Insulation Group Elects President

NEW YORK CITY — Emil T. Johnson, vice president of Union Asbestos & Rubber Co., has been elected president of the National Insulation Manufacturers Association. He succeeds the late Hugh T. Williams, who was with Owens-Corning Fiberglas Corp.

Coming Events

May

May 21-23 — Northamerican Heating & Air-conditioning Wholesalers, Inc., spring convention. Queen Elizabeth Hotel, Montreal. Wilbur R. Bull, managing director, 1200 W. Fifth Ave., Columbus 12, Ohio.

June

June 6-8 — Eastern Biennial Exposition of Oil Heat and Air Conditioning. Hotel Statler-Hilton. Clarence H. Fay, executive secretary, Oil-Heat Institute of New England, 330 Stuart St., Boston 16.

June 26-28 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, annual convention. Denver Hilton Hotel, Denver. R. C. Cross, executive secretary, 234 Fifth Ave., New York.

June 29-July 1 — Carolinas Roofing & Sheet Metal Contractors Association, annual convention. Ocean Forest Hotel, Myrtle Beach, S.C. H. J. Stockard Jr., executive secretary, Raleigh, N.C.

October

Oct. 1-4 — American Gas Association, annual convention. Dallas, Texas. C.S. Stackpole, managing director, 420 Lexington Ave., New York 17.

November

Nov. 6-8 — National Warm Air Heating and Air Conditioning Association, 48th annual convention. Hotel LaSalle, Chicago. James M. Martin, managing director, 640 Engineers Bldg., Cleveland 14.

Nov. 12-15 — Air-Conditioning and Refrigeration Institute, annual meeting. The Homestead, Hot Springs, Va. Geo. S. Jones Jr., managing director, 1346 Connecticut Ave., Washington 6, D. C.

December

Dec. 3-7 — National Association of Home Builders, annual convention and exposition. McCormick Place, Chicago. John M. Dickerman, executive director, 1625 L St., N. W., Washington 6, D. C.



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- NEW ! MOR-SUN Furnace Product Improvements
- NEW ! Sales Aids



MOR-SUN furnace division

Morrison Steel Products, Inc. • Founded 1912 • Buffalo 7, N. Y.



Manufacturers of Heating and Air Conditioning Equipment, Residential and Commercial Steel Sectional Garage Roly-Doors, Roly-Houses, Service and Utility Truck Bodies.

EQUIPMENT DEVELOPMENTS

INFORMATION on capacities, dimensions, applications, and special features in each Equipment Development Item is presented in accordance with material furnished by the manufacturers.

Compact Unit for Gas Heat, Electric Cooling

"ECONOAIR" is a combination of horizontal type, forced air gas furnace and an air cooled, electric remote air conditioner in a single, compact, weatherproof cabinet for outdoor installation.

Two sizes are available: model 24/55 (2 ton cooling capacity, 55,000 Btuh heating capacity), and model 36/80 (3 ton cooling capacity, 80,000 Btuh heating capacity). Outside installations can be either slab-mounted on the ground level or rooftop mounted — *The Payne Co., 855 Anaheim-Puente Rd., La Puente, Calif.*

Multiple Control for 48 in. Press Brake

STRAIGHT BENDING, box and pan bending, and radius bending may be all accomplished on one setting of the 48 in. special universal brake press release. Straight bending, box and pan fingers, and radius fingers may be quickly and easily changed without adjustments, according to the manufacturer. Any length bend can be made from 1 in. to 48 in. by 1/2 in. increments.

Radius formers are available in 1/4, 1/2, 3/4, 1 and 1 1/4 in. radii

with all radius formers having a 4 in. width. Brake includes as standard equipment two 16 in. nose bars and one each of 1 1/2, 2 3/4, 4, and 6 in. fingers. Full length bending capacity is 48 in. of 20 ga material — *Whitney-Jensen Metal Tool Co., 724 Forbes St., Rockford, Ill.*

Roof Panels Redesigned For Top Welding

ACCORDING TO the manufacturer, a significant increase in the load-carrying ability of type "A" roof deck has resulted from a redesign program in which the section properties were improved. The

product is offered in 18, 20, and 22 ga, in either bonderized-and-prime-painted or galvanized steel, in lengths up to 28 ft, 6 in.

Other improvements permit more positive welding and speed erection. A complete, instead of partial, final rib on each panel provides a better surface than did the old design, and wider ribs make it easier to weld from the top, as pointed out by the manufacturer. Also, redesigned end laps permit the panels to nest easily — *Inland Steel Products Co., P. O. Box 393, Milwaukee 1, Wis.*

Air Diffuser Combined With Lighting Fixture

TRIPLE-SHELL Lumi-Flo air handling units provide light, cool, or warm air from a single concealed ceiling fixture. One of the features of the unit is that the air passageway is completely isolated from the light fixture housing by glass fiber insulation and an insulating air gap, thus removing the possibility of heat from electric lights having any effect upon the air discharge temperature. Air handling capacity of the units can be varied from 0 to 200 cfm from either the 1 x 4 ft, or the 2 x 4 ft unit.

Installation time is said to be reduced by use of a snap-in damper assembly and also by employ-

Other Departments

- New Trade Literature 121
- We Hear That 125
- Wholesaler Doings 128
- Appointments 132



DEPENDABILITY

The most important feature in air conditioning today!

And a Bryant Gas air conditioning system is *truly* dependable.

Because it's Gas, weather will not disrupt service, especially on hot, hot days when it's needed most. Because it's Gas, neither you nor your customers will be bothered with excessive costs, excessive maintenance. For



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example, a Bryant add-on Gas cooling unit installs outdoors, uses no high amperage wiring, no valuable floor space, no water tower. And, because it's Bryant, you are backed by a company with over 50 years experience in home comfort . . . now a leader in air conditioning.

Bryant Gas air conditioning can be depended upon to furnish *whole* house comfort—all year round. And *nothing* cools more comfortably, more quietly, than Gas. Ask your Gas company for details.

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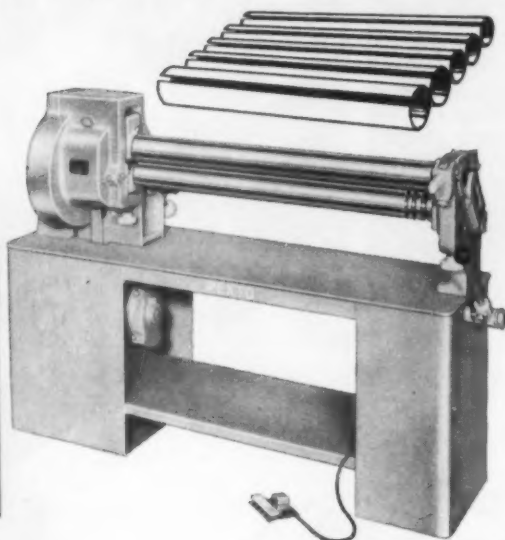
PEXTO

SLIP ROLL FORMING MACHINES

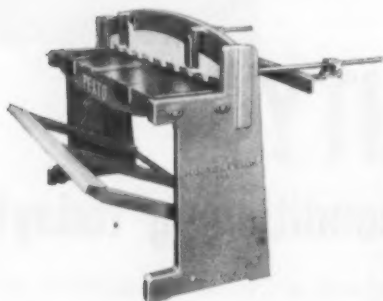
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Constant
Efficiency
with Positive
CHAIN DRIVE**



Illustration shows chain drive with guard removed.

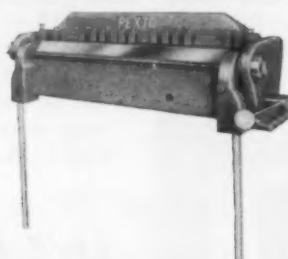


PEXTO makes a complete line of reliable machines and tools for sheet metal fabrication. The Slip Roll, illustrated above, with new chain drive provides positive power at the roll. PEXTO Power Squaring Shears, Foot Shears, Brakes, and a complete line of Hand Tools have, for more than a century, been the standard of quality.



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A complete line of machines and tools for Sheet Metal Fabrication... Since 1785

equipment developments (Continued)

ing a side-mount hanger which eliminates the necessity of overhead yokes and supports — *Tuttle & Bailey Div. of Allied Thermal Corp., 215 Warren St., New Britain, Conn.*

1961 Model Furnaces, A C Units Introduced

ADDITIONS TO the "Heatwave" line include three models of oil-fired furnaces: highboy, horizontal, and counterflow. Gas-fired highboy units are 75,000, 100,000, and 125,000 Btuh input furnaces.

Highboy, lowboy, counterflow, and horizontal units are included in the furnace line. Models range from 75,000 to 200,000 Btuh. Recessed wall heaters are offered in both single and dual models, sizes ranging from 25,000 to 65,000 Btuh. Evaporator coil sections are designed with matching coil housing for application to all forced air furnaces.

Electric furnaces of the forced air type incorporate an evaporator cooling coil for initial installation or for water application. Heat pumps are available in sizes ranging from 2 to 5 tons in both remote and package types — *Southwest Mfg. Co., Box 151, Aurora, Mo.*

Portable Seven Day Recording Thermometer

PORTABLE "AIRSECO" recording thermometer records temperature for seven days, without attention, on a 3 3/8 in. diameter circular chart. The instrument features a dry stylus, moisture-proof chart paper, and an 8-day, spring driven chart mechanism. It is completely self contained in a black anodized aluminum housing, 3 15/16 in. diameter by 2 7/8 in. thick. Weight is 14 ounces.

The instrument is supplied in four "snap-on" temperature



Here's proof that USS Galvanized Steel Sheets have exceptional workability—twist and bend, and the zinc coating won't flake off.



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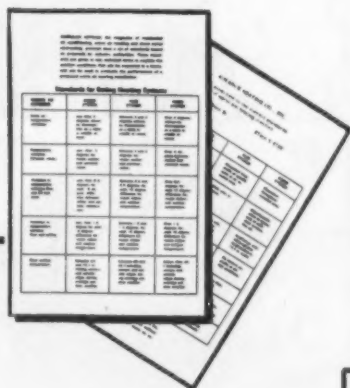
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equipment developments

(Continued)

ranges: 20 to 220 F; 40 to 140 F; minus 30 to plus 70 F; minus 40 to plus 160 F. Interchangeable "snap-on" actuating elements are available to change the range of the basic instrument. A wall and shelf mounting bracket is also available — *Airserco Mfg. Co.*, 435 Melwood Ave., Pittsburgh 13, Pa.

Portable Evacuating Units for A C Systems

"PORT-A-VAC" portable vacuum pumping system is packaged in a service kit for air conditioning and refrigeration units. The system is comprised of a two-stage rotary gas ballast vacuum pump and motor; a thermocouple vacuum gauge which measures direct total absolute pressure. The gauge has a range of 100 to 1 microns. The system can evacuate air conditioning systems to 50 microns of mercury or below. The pump inlet has a 1/4 in. female pipe thread fitting — *National Research Corp.*, 160 Charlemont St., Newton 61, Mass.

Multi-purpose Kit Tests Gas Burner Controls

TEST KIT No. 120-2, multi-purpose test instrument checks drop out values of thermoelectric power units, MV output of thermocouples and pilot generators, performance of pilots during main burner operation, and continuity of any electrical circuit. Compact design provides three wide division scales for accurate reading of 0-30, 0-300, and 0-900 for both millivolts and milliamperes.

Additional features include an overlapping contact switch that prevents power unit drop out during switchover from MA to MV. The kit consists of three leads with adapters for control testing, one Y-lead with alligator clips for continuity and general use, one

fixed load adapter for taking millivolt readings of the thermocouple, and one closed circuit adapter — *Baso Inc.*, P. O. Box 461, Milwaukee 1, Wis.

Commercial Slot-type Wall-to-Wall Diffuser

"ASL" STRAIGHT line commercial type air diffuser has been designed to permit the use of high cooling temperature differentials. According to the manufacturer, the diffusers are recommended for continuous wall-to-wall applications, or can be used as individual diffusers. The units are easy to install; no screws, nuts, or bolts are needed — *Anemostat Corp. of America*, 10 E. 39th St., New York 16, N. Y.

Electric Furnace has Five-stage Step Control

ELECTRIC FURNACE for air distribution systems is available in highboy, lowboy, and horizontal models. According to the manufacturer, the unit permits zero clearance at sides and back, two inches from front, one inch for top. Five-stage step control, sensitized by the thermostat, cycles five separate heating elements for even temperature control. Each step supplies 5 kw (17,000 Btuh). The furnace is one of the 15 Series models.

Cabinets are of reinforced steel with a baked-on beige enamel finish. Insulation is glass fiber with aluminum foil facing. Front panels remove to permit easy access to all controls, resistance elements, blower, and filter. Knockouts are provided for duct connections — *Janitrol Div., Midland-Ross Corp.*, 400 Dublin Ave., Columbus 16, O.

Hand Tool Fastens Anchor to Concrete

NELSON HAMMER HD-100, a hand operated anchor drive tool, is designed to perform four different operations. It can be used to fasten equipment to concrete or light



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The powder-actuated tool shown here is a fundamental improvement over other methods of fastening to steel and concrete. Five years of extensive field experience have demonstrated that its fastenings are at least the equal of those made any other way. But it will make them faster, more economically, and with less effort required from your work force. It's called the Duo-Jobmaster and it's part of the Ramset Fastening System.

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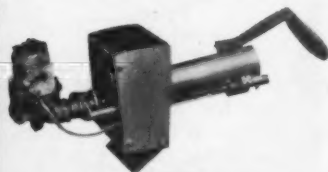


Tube Type Inshot
50M to 250M BTU

Power Inshot



75M to
600M BTU



Tubeless Inshot
50M to 400M BTU

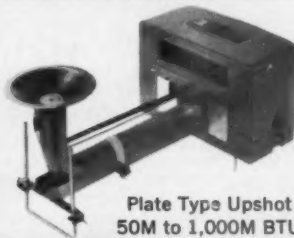


Plate Type Upshot
50M to 1,000M BTU

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equipment developments

(Continued)

gage steel, fasten wire loops to concrete or steel, drill into masonry, concrete, or brick mortar joints or stone. The tool is provided with a rubber hand grip for comfort and long wear.

Companion to the HD-100 is a heavy duty hammer designed with an extra-weighted head for better striking power — *Gregory Industries, Inc., Toledo Ave. & 28th St., Lorain, O.*

Portable A-C Arc Welder For Use at Job Site

PORTABLE, medium duty A-C arc welder (model M 18 T-1) is designed for welding applications at the job site. The 180 amp, compact unit is mounted on heavy duty wheels; full 80 volt open circuit voltage allows welding with all types of electrodes from 1/16 in. to 3/16 in. in diameter.

An automatic balance volt-arc feature provides a deep penetrating arc at high ampere settings and a soft arc at low settings for light gage metals. The 15 to 180 amp range is covered in 15 steps — *Metal & Thermit Corp., Rahway, N. J.*

Diffuser Offers Choice Of Frames and Cores

EXTRUDED ALUMINUM "Agitair Stripline" slot-type commercial application air diffusers are designed with separate plaster frames and removable cores for heating and cooling applications. Available in two styles of frames and three types of removable cores with diffusing vanes for ceiling, sidewall, window-sill installations.

Diffusers are made in sections or can be used as a continuous unit by butting the sections together with a built-in interlocking feature that assures alignment, according to the manufacturer. The



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Estimating Overhead Costs and Profits

A collection of articles by N. J. Biddle, Secretary, Michigan Heating and Sheet Metal Association. He discusses the proper methods for accurately estimating materials, labor, and overhead costs...for determining the right selling price that will insure PROFIT-PROTECTION. This is "must" reading for dealer-contractors and sheet metal contractors who want to quote jobs at correct prices which include an adequate net profit for their work. 36 pages. 8½ by 11. Price \$1.50

Residential Cooling-Volume II

A big book of 37 "how and why" articles on residential air conditioning by S. W. Reid, one of the country's most respected experts on home cooling. It's a book that can save you (and your installation and service men) untold hours of time and hundreds of dollars in money on air conditioning installation and trouble shooting. Covers such subjects as...how to plan and install air conditioning systems for greatest efficiency...why air conditioning systems break down...where to look for failures in a system...how to fix such failures fast. A wealth of data for all engaged in comfort air conditioning. 132 pages. 8½ by 11. Price \$1.50

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This series of 17 articles by S. Konzo provides correct standards for evaluating the comfort performance of any forced warm air heating installation...also for improving efficiency of a newly installed system...or for correcting faulty adjustments in existing systems. It tells exactly what factors make a quality system. It gives standards for rating every phase of heating performance. It warns you of trouble spots, tips you off on what to look for (and what to do) when things go wrong. 88 pages. 8½ by 11. Price \$1.50

Ductwork Estimating Tables-Revised

A collection of revised, field-checked figures to help you estimate costs of duct sections, fittings, and components. These up-to-date Ductwork Estimating Tables cover weights and required fabricating times of components in sizes from 44 x 12" to 4 x 7" and fittings needed for elbows, transitions, branches and boot takeoffs. Figures are based on actual stop watch data collected exclusively for *AMERICAN ARTISAN* by E. B. Root and Darwin A. Downing. 25 tables. 8½ by 11. Price \$1.50

Industrial Sheet Metal Work

Contains all basic design and engineering data necessary for the proper planning and installation of fume removal, dust collecting, wood-waste removal, ventilating and other industrial sheet metal systems and equipment. Made up in the main of data published in *AMERICAN ARTISAN*, this book offers sheet metal contractors dozens of practical designing ideas, layouts, installation kinks, tables and charts, contributed by more than 50 of the country's leading industrial sheet metal experts. 218 pages. 8½ by 11. Price \$1.50

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new impact control feature

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equipment developments (Continued)

unit, it is said, can be installed without the use of special tools. Unit coil spring-lock eliminates the use of screws and screwholes — *Air Devices Inc., 185 Madison Ave., New York 16, N. Y.*

Pre-assembled Chimney Designed for All Fuels

"DURA-CHIMNEY" consists of three concentric metal walls, with air separation, assembled at the factory, and weighs 6 lb per ft. It has a 7 in. inner flue of stainless steel and an outer wall of heavy galvanized steel. It is suitable for equipment burning solid, liquid, or gas fuel, according to the manufacturer. The chimney terminates on the roof in any one of three styles of painted metal housings — *Dura-Vent Corp., 2525 El Camino Real, Redwood City, Calif.*

Two Models Expand Unit Heater Line

EXPANDED line of gas-fired unit heaters includes a propeller fan model in 10 sizes from 25,000 to 150,000 Btuh; the centrifugal blower model for free delivery or use with duct, in 8 sizes from 50,000 to 250,000 Btuh.

These models are added to the present "Three-Sixty" line of circular unit heaters, available in two models, 85,000 Btuh and 150,000 Btuh — *Norman Products Co., 1150 Chesapeake Ave., Columbus 12, O.*

Two Section Rooftop Heating, Cooling Unit

HEATING and cooling roof top unit is divided into two sections (model CRU-801). The heating section consists of two blowers on a common shaft, a 1 hp blower motor and variable pitch drive,



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Rochester, New York
Hansley, Inc.,
Brooklyn 32, New York
K. & S. Metal Supply, Inc.,
Long Island City, New York
Metal Purchasing Company, Inc.,
New York 1, New York
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EAST NORTH CENTRAL STATES

Chicago Steel Service Company
Chicago 32, Illinois
Hubbell Metals Inc.,
Indianapolis 2, Indiana
Huron Steel Company
Detroit 16, Michigan
Meier Brass & Aluminum
Hazel Park, Michigan
The Ohio Metal & Manufacturing Co.,
Dayton 2, Ohio
Voyrs Brothers, Inc.,
Columbus 9, Ohio
Williams and Company, Inc.,
Cleveland 14, Ohio
Cincinnati 29, Ohio
Columbus 8, Ohio
Toledo 12, Ohio

WEST NORTH CENTRAL STATES

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Hubbell Metals Inc.,
Kansas City 16, Missouri
St. Louis 3, Missouri
E. M. Jorgensen Company
Wichita, Kansas
Marsh Steel Corporation
Wichita, Kansas
North Kansas City 16, Missouri

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Reynolds Aluminum Supply Company
Miami, Florida
Atlanta 1, Georgia
Savannah, Georgia
Raleigh, North Carolina
Richmond, Virginia
J. M. Tull Metal and Supply Co., Inc.,
Jacksonville, Florida
Miami, Florida
Tampa, Florida
Atlanta 2, Georgia
Atlantic Steel Company
Atlanta 1, Georgia
Hubbell Metals Inc.,
Marietta, Georgia
Hill-Chase Steel Company
of Maryland
Baltimore 3, Maryland
Vance Iron and Steel Company
Charlotte, North Carolina
Dominion Culvert and Metal Corp.,
Roanoke 5, Virginia

EAST SOUTH CENTRAL STATES

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Birmingham, Alabama
Reynolds Aluminum Supply Company
Birmingham, Alabama
Louisville, Kentucky
Memphis, Tennessee
Nashville, Tennessee
J. M. Tull Metal & Supply Co., Inc.,
Birmingham, Alabama
Hubbell Metals Inc.,
Louisville, Kentucky
Memphis, Tennessee
Williams and Company, Inc.,
Louisville 3, Kentucky
Mid-State Steel, Inc.,
Nashville, Tennessee
Siskin Steel and Supply Company, Inc.,
Chattanooga, Tennessee
Vance Iron and Steel Company
Chattanooga, Tennessee

WEST SOUTH CENTRAL STATES

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Little Rock, Arkansas
Marsh Steel Corporation
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E. M. Jorgensen Company
Tulsa 5, Oklahoma
Dallas 23, Texas
Houston 1, Texas

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Phoenix, Arizona
E. M. Jorgensen Company
Denver, Colorado
Phoenix, Arizona
Marsh Steel Corporation
Denver 16, Colorado
Pacific Metal Company
Bessemer, Idaho
Structural Steel and Forge Co.,
Salt Lake City, Utah

PACIFIC STATES

Allen Fry Steel Company
Los Angeles, California
Ducommun Metals & Supply Co.,
Berkeley 10, California
Los Angeles 54, California
National City, California
Seattle 8, Washington
E. M. Jorgensen Company
Los Angeles 54, California
Oakland 23, California
Seattle 24, Washington
American Steel Warehouse Co.,
Portland 14, Oregon
Pacific Metal Company
Portland 9, Oregon
Seattle, Washington

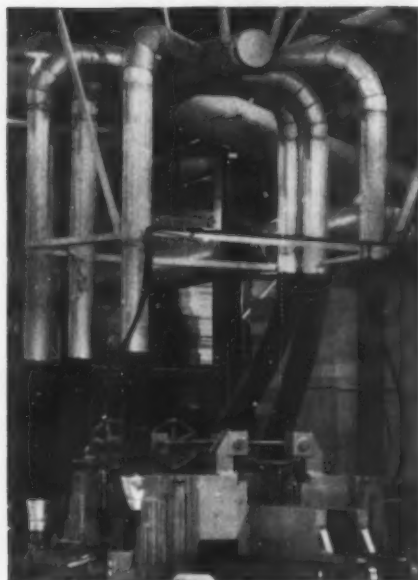
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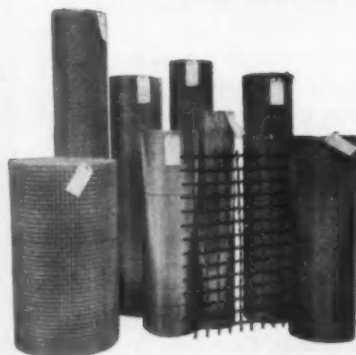
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equipment developments

(Continued)

filters, and two 100,000 Btuh input duct-type furnaces; an air cooled condensing unit, evaporator coil, and control box comprise the cooling section.

Each section is pre-wired, mounted on a four-inch channel iron frame, and enclosed in aluminum panels. Supply and return air enters through a single ceiling diffuser — *Westinghouse Air Conditioning Div., Staunton, Va.*

Abrasive Cutoff Wheel Cuts Shapes up to 3 in.

SPEED-CUT No. 11, abrasive cutoff machine cuts metal roof-deck and other shapes up to 3 in. thick and solid bars up to 1½ in. thick. It uses a wheel 11 in. in diameter with a 1 in. shaft bore equipped with drive pins. A screw-type positive clamping vise holds work securely while being cut. The machine weighs 136 lb and stands 21½ in. tall. It can be mounted on a stand or on a workbench — *Beaver Pipe Tools, Inc., Warren, Ohio.*

Slot-type Air Diffuser Fits Light Fixture Frame

TYPE CLD AIR diffuser permits coordination of air distribution and illumination in a single efficient unit. The integral parts of the combination unit are two separate products. The combination "CLD" diffuser and fluorescent light fixture is designed for separate installation, the diffuser by craftsmen employed by the mechanical contractor, and the lighting fixture by electricians.

The "CLD" air diffuser is of the aspirating type, and discharges the supply air at acceptable sound levels without smudging, according to the manufacturer — *Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y.*

Calculator Gives Quick Duct and Grille Data

SLIDE RULE CALCULATOR to reduce calculations required for duct and grille installations, gives accurate readings of friction, weight per lineal foot of round duct, and surface area in square feet per lineal foot of round duct.

The calculator also gives the computations in terms of rectangular duct as well as B & S ga galvanized steel. The rule can also arrive at calculations by either the equal-friction or velocity-reduction methods.

The back of the rule serves as a register and grille selector. The register selector shows free area, recommended face velocity, cubic feet per minute, heating and cooling btuh as well as throw and velocity — *Lima Register Co., 1790 N. Cable Rd., Lima, Ohio.*

Domestic Water Heater Attaches to Furnace

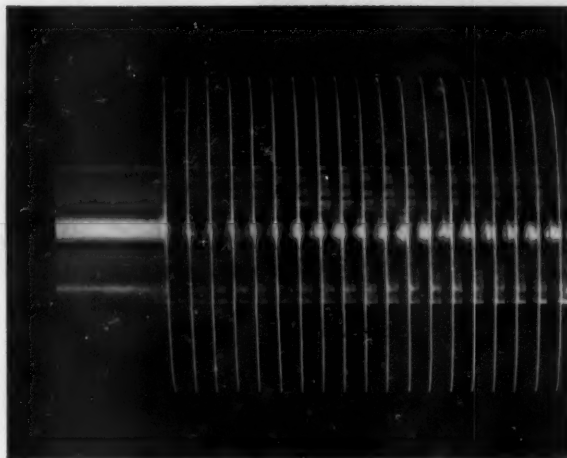
THREE-IN-ONE package, heating, air conditioning, and hot water, are offered as one system. The domestic water heater attachment is designed for use only with the company's heating and air conditioning units.

Water heating is accomplished by directing all or part of the 350 F air in the bonnet of the "Jet-Heet" furnace through a special heat exchanger which attaches to the rear of the furnace and contains a special coil. Heat is exchanged into the coil containing cold water and the resulting hot water is piped to a 30 gal glass-lined storage tank suspended horizontally above the furnace. Any heat not exchanged into the water coil is returned directly to the furnace blower so that nothing is lost, according to the manufacturer.

The water heater kit is shipped as a complete package and includes the glass-lined tank, with two fittings and anode, heat exchanger assembly, aquastat, low voltage transformer wiring and automatic damper — *Jet-Heet, Inc., 152 S. Van Brunt St., Englewood, N. J.*

Roof Mounted Year 'Round Unit Available as Three Part Package

SELF-CONTAINED rooftop cooling unit and a combined heating and cooling unit has been designed for 1-story commercial buildings. The cooling system is available as a separate unit while the year 'round temperature control system is a three part package consisting of an air cooled condenser, a cooling section, and a gas-fired unit for heating.



AEROFIN Smooth-Fin Coils offer you

**Greater Heat Transfer
per sq. ft. of face area**

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Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



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EXPORT: Duro-Dyne Div. States Trading Co., 401 Broadway, New York, N. Y.

Cable: TRADESCO

equipment developments

(Continued)

Models are available in 7½ and 10 ton sizes. Over-all dimensions of the complete 7½ ton unit are 139⅜ in. long, 52 in. wide and 44⅛ in. high. The 10 ton model measures 151⅛ in. long, 60 in. wide and 44½ in. high.

The rooftop system requires only one opening through the roof for combination supply and return air duct. No refrigeration piping is required. The packaged unit is enclosed in a weatherproof housing of heavy gage embossed aluminum sheet. Exterior painting is not required — *Curtis Mfg. Co., Refrigeration Div., St. Louis 33, Mo.*

Light Gage Metal Welding Eased By Air Cooled Electrode Holder

AIRCO "H16-A" heliweld holder with 160 amp A-C or D-C continuous capacity is now available. Features include minimum stub loss, efficient gas shielding and elimination of high frequency leakage. Tungsten electrodes from 0.020 through 5/32 in. in diameter and from 2 to 7 in. in length can be accommodated. Argon, helium, or mixtures of argon and helium shielding gases can be used.

The holder provides rapid, clean, and smooth welding of light gage aluminum, alloy and stainless steels, brass, copper, magnesium, molybdenum, nickel, silver, and other metals, according to the manufacturer. Its 2⅞ in. head clearance permits use in confined spaces, and air cooled construction eliminates the need for a water system.

A variety of nozzle orifice sizes are available in 1¼ and 1⅝ in. lengths. Made of aluminum, these nozzles are designed to provide long life, thermal and mechanical resistance — *Air Reduction Sales Co., 150 E. 42nd St., New York 17, N. Y.*

Pistol Grip Grinders Feature One Hand Control

"31V" AND "31S" series of grinders and sanders with an offset pistol grip handle that features one-hand control for general duty finishing operations.

The "31V - 140" grinder has a 3 in. wheel capacity. Exclusive of wheel, the tool is 5½ in. long, weighs 17½ lb, and a ⅜ in.-24 spindle turns at 18,000 rpm. An adapter for depressed center wheels is standard equipment.

The "31S - 140" sander has a 3 in. disc capacity, is 6¼ in. long, weighs 2 lb., and operates at 20,000 rpm. A clamping washer and adapter are standard equipment.

A sensitive trigger throttle allows slow tool start-up and gradual speed increases for close-quarter weld cleanup or feathering. A removable and adjustable

equipment developments

(Continued)

dead handle is also furnished with each model — Buckeye Tool Corp., 5003 Springboro Pike, Dayton 1, O.

Year 'Round Units Offered In Eighteen Combinations

DELCO "365 CONDITIONAIR" offers cooling capacities from two to five tons, with maximum over-all dimensions of the remote air cooled condensing units at 28¾ in. high, 45⅝ in. wide, and 31⅞ in. long.

The cooling portion of the unit includes a cooling coil placed in the heating system's air stream, and a condensing unit placed outside the building.

Companion heating equipment in gas- and oil-fired furnaces are offered in three models, highboy, counterflow, and horizontal. Gas units are 4½ ft high, 2¼ ft deep, with widths ranging from 14 to 23 in. Input capacities range from 70,000 to 125,000 Btuh.

Oil furnaces are 4½ ft high and 3 ft deep, range in width from 23 to 31 in., and have input capacities from 67,000 to 112,000 Btuh. All models are finished in Cameo Beige or Sahara Tan baked enamel — Delco Appliance Div., General Motors Corp., P. O. Box 230, Rochester 1, N. Y.

Low Velocity, High Capacity Dry-type Air Filter

DRY-TYPE AIR FILTER, AAF DRI-Pak, incorporates a filter that inflates when the ventilation system is in operation and collapses when the system is shut down.

With this feature, the unit can be inspected and serviced from either the air-entering or air-leaving side of the filter bank. Each 24 in. x 24 in. cartridge weighs 4 lb.

Each filter is rated at 2000 cfm and provides 95 sq ft of filtering media surface. Velocity through the media is 21 fpm, and the ratio of media area to face area is 24 to 1. The system is available in three standard sizes: Series 2000 (24 x 24 x 36 in. inflated); Series 2000 H (12 x 24 x 36 in. inflated); and Series 1000 (24 x 24 x 18 in. inflated).

The holding frame for the filter is 4 in. deep and is constructed of corrosion-resistant galvanized steel. Air-seal construction is provided to insure against air leakage.

Frame is available in three arrangements: front access with no pre-filter; rear access with no pre-filter; and front access with pre-filter — American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.

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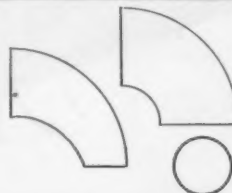
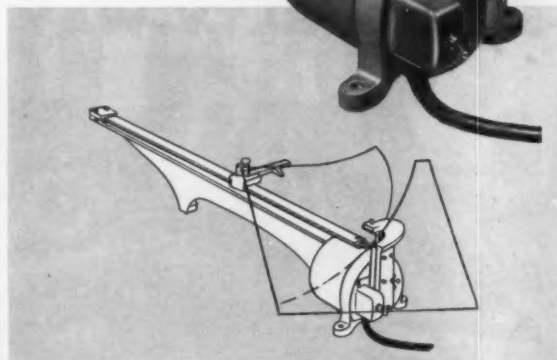
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equipment developments

(Continued)

Temperature Controls Louvers Thermostatically

ALUMINUM VENTILATOR opens and closes automatically under the control of a factory set thermostat. Movable louvers shut tight when the temperature drops to 50 F, and move gradually to a fully open position when the thermometer rises to 70 F.

Seven available models range from the foundation type to gable, soffit, and roof louver designs. Each ventilator is complete in itself, operates independently, requires no electrical connections, and all models are produced in standard ventilator opening sizes. Most models are available with mesh insect screen, and a fusible link which melts in case of fire, automatically closing the louvers — *Thermvent Corp.*, 12861 Artesian St., Detroit 23, Mich.

Analyzer Calibrated for Fuel Oil, Gas or Coal

ELECTRONIC combustion analyzer obtains maximum heating efficiency from any kind of oil, gas or coal furnace quickly, according to the manufacturer. The analyzer is a portable precision instrument incorporating a thermal conductivity sensing unit that utilizes glass-coated bead type thermistors designed to be unaffected by soot or foreign matter.

It measures CO₂ content of flue gas, stack temperature, and draft over fire.

Analyzers are furnished complete with battery, rubber hoses, gas sampling tube with thermocouple, filter drier, hand aspirator, thermocouple cord, combustion efficiency calculator, operating instructions, conversion chart and carrying case. Two domestic and two industrial models are available — *Victory Engineering Corp.*, 602 Springfield Rd., Union, N. J.

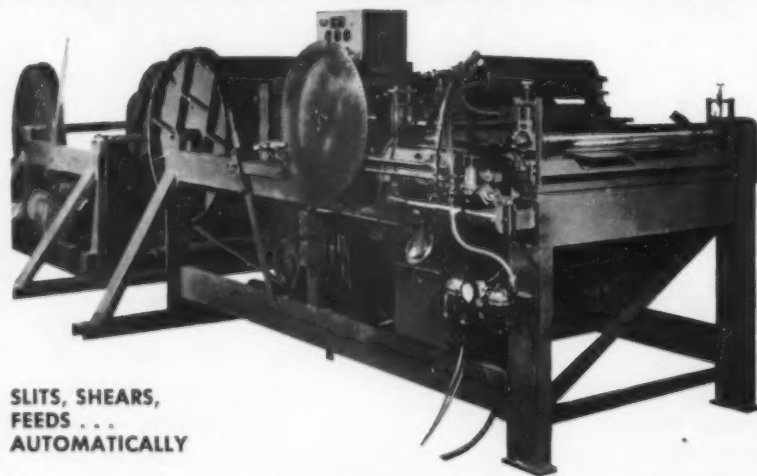
Utility Electric Furnace Rotates 360 deg

ALL-POSITION electric furnace with drawer-type elements in increments of 5 kw's has a heating range of 42,000 to 93,000 Btuh. Furnace designed for all types of forced air systems. According to the manufacturer, the blower mounting permits the furnace to be rotated and operated through 360 deg.

Also, an automatic sequencer adjusts heat input to heat demand. Thermostat setting determines continuous or intermittent blower operation.

All models are equipped with heat exchangers of aluminum steel, type-A nichrome-nickel heating elements, sound-conditioned belts and blowers, and V-type filters. Dimensions of all units are: height, 47 1/4 in.; width, 24 in.; and depth, 20 in. Finish is medalion gray baked enamel — *The Coleman Co., Inc.*, St. Frances & Second St., Wichita 1, Kan.

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Imagine blanking out 12,000 elbow blanks per hour. **WELTY-WAY'S NEW SLEAR** does! **WELTY-WAY** feeds metal of any length . . . cut to the exact 1/16 inch . . . into your fabrication machine. It supports metal coil, evenly feeds metal, pulls metal from coil, levels it, slits it, shears it, moves it through the shear and feeds it into your fabrication machine. **WELTY-WAY** increases production more than 50% while reducing labor cost!

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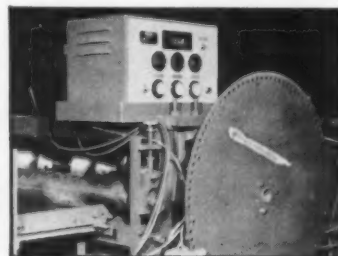
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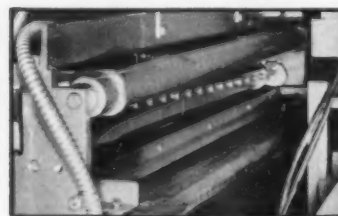
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Split System Equipment, Packaged Units Cool Offices, Stores and Homes

AIR COOLED and water cooled split system equipment for cooling stores, offices, motels or multi-level buildings is described in folder LL-487. Specifications and dimensions are listed for all condensing units, and rated capacities for matching evaporator units indicate the pairing required for cooling from 22,000 to 420,000 Btuh. Engineering features and various application advantages are detailed. Also available is folder LL-484 which illustrates versatility of packaged air conditioning units for residential and small commercial installation. Units may be installed in attics, crawl space, roof tops or through-the-wall—Chrysler Corp., Airtemp Div., 1600 Webster St., Dayton 4.

Oil Burner Brochure Lists Advantages Of Automatic Heating System

MODEL F WALL FLAME OIL BURNER featuring "Nurpeller" assembly for efficient rotary distribution and vaporization of oil is described in a six-page, full color brochure illustrated with product and in-

stallation photos. Designed for consumer distribution, circular describes advantages of automatic oil heat from the standpoint of comfort and health as well as economy of operation—Cleveland Steel Products Corp., Toridheet Div., 16025 Brookpark Rd., Cleveland 35.

Air Diffuser Catalog Features Data On Continuous Line Ceiling Model

CONDENSED CATALOG of "Uni-Flo" air distribution equipment (eight pages) shows various models, sizes and finishes available. Included is information on new continuous line extruded aluminum ceiling diffusers. Ask for catalog F-4471-8—Barber-Colman Co., 1300 Rock St., Rockford, Ill.

Cite Advantages, Sales Appeal Of Terne Metal Roofing

FOUR BROCHURES EXPLAIN ADVANTAGES of seamless terne roofing and tell how to increase metal roofing sales. Booklets are titled "It's the Talk of the Building Trade," "A New Look for an Old-Timer," "Getting Your Share of the Metal Roofing Business?" and "You'll Like the Way It Works . . . It Solders . . . It Takes Paint." Included are photos of outstanding



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installations as well as diagrams and drawings showing applications—*Follansbee Steel Corp., Penn and Main Sts., Follansbee, W. Va.*

Details Advantages of Aluminum Products for Residential Uses

THREE BOOKLETS contain information on aluminum architectural products: 1) Aluminum Gravel Stops and Copings presents details and specifications on seven types of systems; 2) Aluminum Roofing and Siding Products gives descriptions, specifications and installation data on batten roofing, corrugated roofing and siding, V-beam roofing and siding, ribbed siding sheet, and perforated corrugated sheet; 3) Exterior Wall Products of Aluminum includes details on wall panels and screen systems—*Aluminum Co. of America, 774 Alcoa Bldg., Pittsburgh 19.*

Psychrometric Chart Helps Select Proper Air Conditioning Equipment

PSYCHROMETRIC CHART is designed for greater utility and accuracy in the selection of air conditioning

systems and equipment. The chart reduces error to less than one percent, according to the company. Accompanying data sheet presents directions for using the chart—*The Trane Co., La Crosse, Wis.*

Horizontal Oil Furnaces Are Designed For Heavy Duty Applications

CATALOG INSERT presents engineering data on "OS6" horizontal oil-fired furnaces. Units are designed for heavy duty applications such as heating of service stations, commercial and industrial buildings. They are engineered for versatility of installation, high performance and long life, according to the company. Furnaces are available in right and left hand models so the burner can be mounted on the front for either direction of air flow. Included are performance charts, specifications, dimensional diagrams and application drawings—*Lennox Industries Inc., 200 S. 12th Ave., Marshalltown, Iowa.*

Presents Data on Integral Horsepower Vertical Motors

TWO-PAGE BULLETIN (No. 1485) covers integral hp vertical motors for supply and exhaust air systems. Types illustrated include totally enclosed, fan cooled



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Descriptive Literature on Request.

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squirrel cage model; single phase capacitor start motor; and dripproof squirrel cage type. Application and dimensional information is included—*Century Electric Co., 18th & Pine Sts., St. Louis 3.*

Offers Promotional Material On Oil-Fired Water Heaters

"SELL OIL-POWERED WATER HEATERS to a Growing Market" (16 pages, \$1) analyzes the market potential for oil water heaters and explains where to look for buyers, how to create interest and make sales. Other water heater promotional material available includes: "How Can Most Hot Water Cost Least?" (OHI-P200); "Never Another Cold Shower" (#4653); "4½ Times Faster" (#5953); and "Some Like It Hot" (#7084)—*Treasury of Advertising, Distribution Div., Oil Heat Institute of America, 500 Fifth Ave., New York 36.*

Technical Data Given on Air Filters, Grease Filters for Kitchen Exhaust

DATA SHEET describes heavy duty high and low velocity air filter panels for heating, ventilating and air conditioning applications. Tables show sizes, capacities, shipping weights and dimensions. Also available is a folder describing advantages of grease filters for kitchen exhaust systems. According to the company, filter protects blower and motor from dust, lint and grease and at the same time guards against the danger of fires—*Aircon Filter Sales and Service Co., 1436 Land Title Bldg., Broad and Chestnut Sts., Philadelphia 10.*

Describes Advantages of High Frequency Electric Tools

CATALOG ON HIGH FREQUENCY electric tools covers grinders, sanders, polishers, impact wrenches, screw drivers, and drills. Ask for catalog. No. 62—*Thor Power Tool Co., 175 N. State St., Aurora, Ill.*

How Air Conditioning Control Valves Effect Savings in Installation Costs

EIGHT-PAGE BULLETIN describes and illustrates "Selectaflo" year 'round air conditioning control valves. The folder (No. 272-A) explains how the valves eliminate the need for pneumatic lines or electrical connections. Specifications are given for both direct and remote actuator types. Heating and cooling cycle operations are illustrated by cross-sectional schematic diagrams. Also presented is data covering "Winter-

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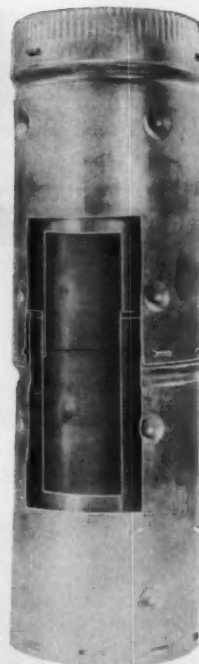
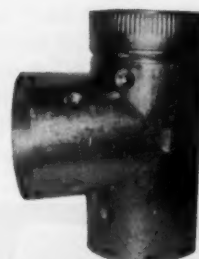
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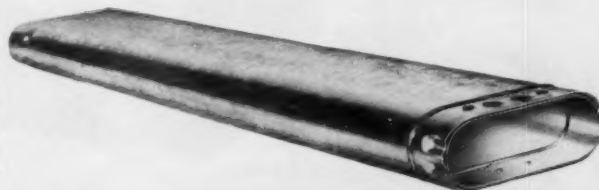
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EASTWOOD STATION, SYRACUSE, NEW YORK

new literature

(Continued)

flow-Summerflow" controls—*American-Standard Controls Div., Dept. 272, 5900 Trumbull Ave., Detroit 8.*

Presses Are Designed to Increase Productivity, Improve Work Quality

"OBI" PRESSES arranged for automatic, high speed operation with progressives dies are described and illustrated in bulletin 54. Included are standard specifications, die space dimensions and other data for 22, 35, 45 and 60 ton capacity models. Features include rugged, welded steel frame; long, rigid slide; bronze bushings; fully enclosed drive; and built-in press control—*Niagara Machine & Tool Works, 683 Northland Ave., Buffalo.*

How to Select Attic Fans To Meet Specific Requirements

BROCHURE PRESENTS ATTIC FAN selection information. Illustrations show "Rancher Builder" heavy duty exhaust fan for homes with low pitched roofs; "Builder-Special" attic fan for smaller homes with truss construction; panel fan for houses with large attic area; and automatic attic exhaust fan for ventilating any type of attic. Also available is bulletin 12e/La,

which includes information on accessories such as ceiling shutters for panel fans and automatic wall shutters for panel and exhaust fans. Also included are photographs and data on "Centri-Vent" home ventilating unit. Application and installation data is given for "Champion" and "Challenger" range hoods—*Lau Blower Co., 2027 Home Ave., Dayton 7, O.*

Labor and Material Cost Data Is Aid to Accurate Estimating

"MECHANICAL ESTIMATOR'S C-GUIDE" is a collection of labor and material cost data for air conditioning of all types. The 1961 edition has been completely revised and all prices brought up to date.

Included is pricing data on labor and materials for cooling towers, residential air conditioning systems, service reserves, grilles, heating equipment, tools and labor saving devices, etc.

The chapter, "Check Data Figures," shows actual closeout costs, in dollars and percent, of jobs ranging from small package units to large systems.

Prepared for use by air conditioning and heating dealer-contractors, sheet metal contractors, mechanical contractors and others, the guide also serves as a tool to train new sales personnel, estimators and engineers. The book contains 156 pages, is priced at \$6.95—*Technical Guide Publications, Inc., 224 N. E. 59th St., Miami 37, Fla.*

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► **PERFECTION DIV.**, Hupp Corp., recently completed a series of week-long courses designed to provide dealer-contractors with up-to-date information on installation, servicing and business building techniques. Live equipment, including furnaces, heat pumps and air conditioning units, were used in the study course. Particular emphasis was placed on making dealer-contractors realize the benefits of accurate calculations rather than "rule of thumb" approaches in equipment selection.

Carl W. Millsom, sales vice president, and Paul Gauthier, sales manager of Perfection, reviewed techniques for building business in the existing home market for replacement furnaces and new air conditioning systems.

► **THE LEWIN-MATHES CO. Div.** of Cerro Corp. has realigned its national sales organization, creating four geographical sales regions: northeast, with headquarters in Maspeth, N.Y.; north-central, Chicago; midwest, Des Moines; and southeast, Charlotte, N.C. Rodrick J. Lewin, vice president, sales, explained that the main purpose of the realignment is "to provide better service through closer and more frequent contact between customers, salesmen and executive

sales personnel." New regional managers are Lawrence I. Fries, northeast; Robert A. Cook, north-central; John R. Fanning, midwest; and Guy L. Mendini, southeast.

► **JAY G. McKIE** has been appointed manager of marketing techniques in central staff marketing of Texas Instruments Inc. Mr. McKie was previously Dallas area representative for Metals & Controls Inc., a subsidiary of Texas Instruments. In his new position, he will assist all product division marketing departments and personnel in developing new marketing methods and techniques.

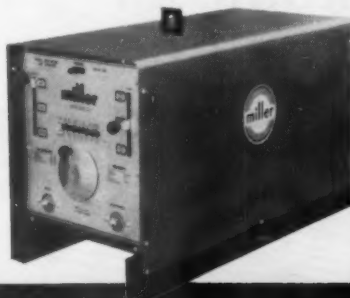
► **A 120,000 sq ft addition** to The Trane Co. plant at Clarksville, Tenn., was recently completed. The new addition nearly doubles the size of the original plant, according to the company.

A new sales office was recently opened in Rochester, Minn., which will serve dealer-contractors, engineers and architects in that area. Gary W. Bubeck is sales engineer in charge of the Rochester territory.

► **CHRYSLER CORP.'S AIRTEMP DIV.** will provide all of the heating equipment for "20th Century" homes manufactured by Scholz Homes, Inc., of Toledo. The homes, priced to sell from \$8995 to \$16,950 (less lot), will have gas-fired furnaces as standard heating



**BIG TWIN
250 AC/DC**



**LITTLE TWIN
180 AC/DC**

AND BOTH MILLERS ... Through and Through

BIG TWIN combination ac-dc welders work from single phase service — deliver new convenience and economy. Two a-c amperage ranges of 20-125 and 60-290 plus two d-c ranges of 18-100 and 65-290 amps master nearly every welding requirement from light gauge metal to structural pieces. Movable shunt type transformer affords infinite current adjustments. Other features include: Horizontal design for easy stacking; weather-resistant construction and Class B insulation; Miller-built semi-metallic rectifier for best d-c welding; high open circuit voltages and new weld stabilizer. This is THE all-time, all-around welder!

LITTLE TWIN ac-dc combination welder has two a-c amperage ranges of 20-115 and 60-180 plus one d-c range of 40-150. Operating from single phase service, this Miller model incorporates many design and construction features usually found only in large industrial types. These include really rugged construction, forced air cooling, new Miller semi-metallic rectifier, movable shunt type current control, new weld stabilizer and open circuit voltage in abundance. Power factor correction is available on both models. Complete specifications on either model will be sent promptly upon request.

miller

ELECTRIC MANUFACTURING COMPANY, INC., APPLETON, WISCONSIN

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal

we hear that

(Continued)

equipment, may be provided with central air conditioning equipment at the owner's request.

► **DEALER-CONTRACTORS** for the Majestic Company recently gathered in Huntington to attend the company's annual "Champion" dealer school. The two-day program featured sessions on installation, service and sales promotion. Don Winegardner, Majestic vice president and sales manager of the Heating and Air Conditioning Div., described sales features of new equipment including gas, oil and electric furnaces as well as "Harthside" metal fireplaces. Training sessions included demonstrations of the assembly and servicing of oil and gas burners and other components of heating and air conditioning systems.

► **THE NATIONAL SUPPLY DIV.**, Armco Steel Corp., has moved its Chicago office to the Kemper Building, 20 N. Wacker Dr.

► **MORE THAN 500 "SELECT DEALERS"** met recently in Miami Beach for the annual goodwill get-together of the Janitrol Heating and Air Conditioning Div., Midland-Ross Corp. The dealer-contractors, each of whom qualified for attendance by maintaining high

technical and merchandising standards, attended sessions on products, marketing and merchandising conducted by Janitrol executives. Highlights of the three-day meeting included introduction of a new electric forced warm air furnace; presentation of "Hall of Flame" awards to Kenneth G. Hull, eastern regional sales manager, and Joseph A. Livi, credit manager; and awarding of the 1960 "Sales Manager's Trophy" to Fred Hamer, district manager of the Indianapolis office. Recreation provided at the three-day meeting included boating, fishing, and golfing.

► **BRYANT MFG. Co.** is sponsoring a series of service and application schools on gas air conditioning at the company's recently established New Orleans branch. Those taking the course include dealer-contractors' servicemen, utility servicemen and utility engineers. All have an opportunity to dismantle and reassemble an operating unit.

► **ROBERT B. DARLING Co.**, New York City, is now a branch office of Barber-Colman Co. The Darling company was formerly a Barber-Colman distributor. Under the new organization, Robert B. Darling became executive sales director for Barber-Colman in the New York area. David E. Ober, former vice president of the Darling company, has been appointed manager of the branch office.

EXTRA PROFITS for PROGRESSIVE OIL FIRMS!

with Kleen Air POWER CLEANING

- INCREASE your SALES!
- PLUS extra profits
- CLEANING & SERVICING!

Write or wire for prices and free information. Absolutely no obligation to obtain facts that will bring NEW CUSTOMERS and NEW PROFITS to you. Many of the nation's most progressive firms are now using the Kleen Air Power Cleaners and our program to make added profits!



INVESTIGATE NOW!

Kleen Air

POWER CLEANING
215 N. MAIN STREET

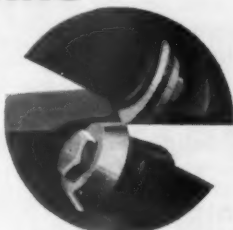
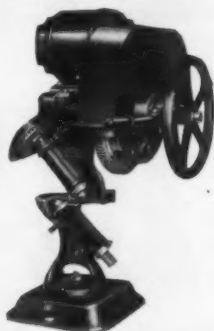
JANESVILLE, WISCONSIN.

WHITNEY-JENSEN MARSHALLTOWN SHEARS

CAPACITIES, 7 SIZES:

18 Ga., 16 Ga., 12 Ga., 10 Ga.
1/4", 3/8", 1/2"

HAND AND MOTOR-
DRIVE MODELS
BENCH AND FLOOR TYPES



THROATLESS PRINCIPLE

As material passes thru the shear, the sheared sections separate, going to the right and left and under and over the spiral shaped head.

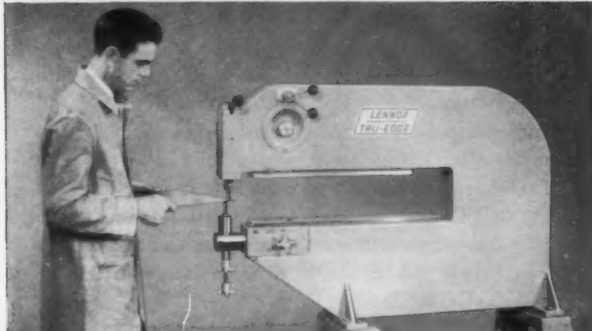
The throatless feature places no limit on the width of the material to be sheared, and straight, irregular, or circular patterns can be followed.

The upper cutter is serrated to feed the material and is driven, while the lower cutter is free to revolve in a sleeve.

The cutters are made of high grade tool steel, accurately ground and tempered. Maintenance or replacement cost is low.

Write Us Now for Complete Information and Prices
WHITNEY METAL TOOL COMPANY
702 Forbes St., Rockford, Illinois

LOOK WHAT \$875 BUYS!



METLMASTR — the ideal sheet metal working machine for Heating & Air Conditioning Contractors

Model TE-100 METLMASTR illustrated has an edge cutting capacity of 12 ga. in mild steel and 16 ga. in stainless. Its versatility accomplishes numerous cutting and forming operations—it eliminates many single-purpose machines. Simplified operating mechanism (only 5 moving parts) and unobstructed shearing vision assure accurate work and a high safety factor. Requires only a minimum of instructional time. It will pay you to get the complete METLMASTR story. 4 models to choose from. Write us today.

LENNOX TOOL & MACHINE BUILDERS
655 N. BAXTER STREET • LIMA, OHIO
LM7



Now from **ARROW**



EXTRUDED ALUMINUM LOUVERS and PENTHOUSES

also SUN SHADES

Stationary and Adjustable

FIRE DAMPERS

multiblade and pivot type. Constructed in strict accordance with Fire Underwriters Bulletin 90 A & B. Special Dampers for N.Y. Telephone Co. work.

AUTOMATIC DAMPERS

for volume control, manual or motorized. All metals: steel, galvanized, copper, stainless.

SOME TERRITORIES STILL OPEN FOR AGENTS

ARROW
LOUVER AND DAMPER CORP.

72 BERRY ST. BROOKLYN 11, N.Y.
EVERGREEN 7-1817

EARN EXTRA PROFIT

NO OVERHEAD INCREASE

There's money just waiting for you in the bird repellent business. Let Nixalite show you how you can earn extra profit with no investment. There's no magic to it because you **already** have the equipment needed to install this permanent bird barrier. This business can fit into your pattern beautifully because you already have skilled men working for you, too.

Many sheet metal plants already have taken advantage of this profit maker by adding a bird repellent division.

Our national advertising furnishes you with leads and the birds themselves point out your best prospects.

Write for our booklet today and a free sample.



Nixalite

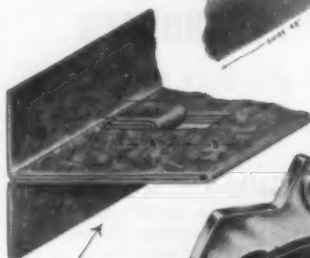
COMPANY OF AMERICA
Department 145
1722 First Avenue
Rock Island, Illinois

—THOR QUALITY TOOLS—

Are time and money savers in heating and ventilating duct work.

THOR GOVERNMENT LOCK DIES shear — punch a 5/32" hole — and mark point at breakline, all in one operation.

Dies available for 1", 1 1/4", 1 1/2", and 1 3/4" government locks. Hand or foot press operated, or for punch presses.



Sample of Lock Completed in one operation — no hammering



THOR
Universal Clip Punch
Capacity, 3 sheets
of 20 ga. metal

Efficient tool for fastening government locks and standing seams. New sensational **AIR-OPERATED CLIP PUNCH** for Gov't Locks and standing seams now available.

See your local dealer or write for literature and samples of metal sheared in above tools.

Thor Tool and Die Co.

865 Estabrook St.,
San Leandro, Calif.

BEVERLY *Electric* THROATLESS SHEAR

Cuts Any Shape in Metal Easily, at High Speed

Provides 1725 cutting strokes per minute... correct speed to handle cutting, trimming and slitting operations in any metal to shear's capacity. Unique downward-forward shearing action provides faster, cleaner cutting; insures longer blade life. Operator's hands are free to feed and guide work through shear—permits accurate cutting to a line or template. Throatless design allows sheet to be turned in any direction during cut. Motor operates on 110V., 60 cycles, AC.



Slits 14 ga. mild steel at 15 ft. per minute. Cuts lighter gauges proportionately faster.

Complete with base and supporting column to provide most efficient and comfortable working height from floor. Can be used with base only as bench shear.



See your nearby Beverly Distributor for a demonstration or write today for illustrated circular.

**BEVERLY
SHEAR MFG. CO.**

3020 W. 111th Street
Chicago 43, Ill.

wholesaler doings...

▶ **ALLEN HEATING SUPPLY, INC.**, Buffalo wholesaler, recently conducted a program among its salesmen designed to improve the quality of their presentations. At weekly meetings during a period of six weeks, each salesman in turn gave a 20-minute talk on an assigned subject while the other five salesmen rated him on these points:

- 1) Did he command attention well?
- 2) Is his speaking easily understood?
- 3) Has he started at the beginning of his topic?
- 4) Is he well poised?
- 5) Is he holding your attention?
- 6) Is the topic developing well?
- 7) Are there distracting mannerisms?
- 8) If questions are in order, has he asked for them?
- 9) Did he convince you?

For an "Excellent" rating, the speaker received 3 points; "Good," 2 points; "Poor," 1 point; and "Bad," zero.

Subjects covered included: "Utilizing Factory School Facilities and the Resulting Benefits," "Breaking the Ice with a Gimmick," "The Benefits of Being 'There' Every Week at the Same Time," and "Going After — and Getting — Project Work."

At the end of the six-week period, the man having earned top score was presented with a prize of \$10.

▶ **THE PRENTISS CORP.**, Los Angeles, has been assigned the Carrier franchise in four additional counties, more than doubling the size of its territory. With the addition of San Bernardino, Inyo, Riverside and Imperial counties, Prentiss now serves nine counties making up the southern portion of California. The firm has recently moved into new quarters located at 4265 Charter St., Los Angeles. Its Inland Empire Div. has offices and warehouse space at 824 Mill St., San Bernardino. Southern division headquarters are at 1135 Garnet St., San Diego.

▶ **THE NORRIS BLANCHARD CO.**, Omaha, has been appointed to represent Stewart-Warner Corp.'s heating and air conditioning division in Nebraska, Iowa and the southern part of South Dakota. Ken Magarell recently joined the Blanchard firm and will cover northern and western Iowa, eastern Nebraska and southern South Dakota.

▶ **F. O. SCHOEDINGER, INC.**, Columbus, recently held an equipment show at its factory and warehouse at 322-358 Mt. Vernon Ave. During the two-day show, the company acted as host to more than 300 sheet metal and roofing contractors from Ohio and West Virginia. Among the manufacturers displaying materials and equipment were Aluminum Co. of



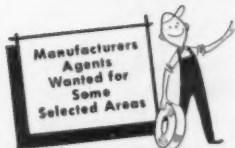
**FLAME-
RESISTANT**

Arno DUCTAPE



**FOR DUCTS
AND INSULATION**

- ✓ Complies with all building codes for flame-resistant duct tapes.
 - ✓ Self-adhesive . . . sticks to any duct material or insulation.
 - ✓ Will not support flame . . . holds firmly at high temperatures.
 - ✓ Nothing to mix . . . saves labor.
 - ✓ Vaporproof . . . waterproof.
 - ✓ Meets ASTM standards.
- Ask your jobber for DUCTAPE.

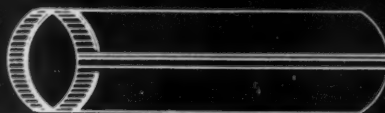
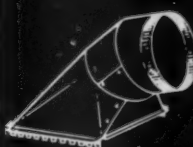
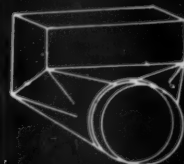
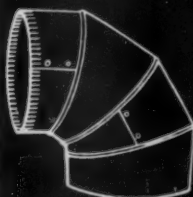


Write for **FREE** test sample!

ARNO ADHESIVE TAPES, INC.
Dr. Schall's Adhesive Tape Division
3019 Ohio St., Michigan City, Ind.

HANDY PIPE

Isn't it's 9th year



Handy has best design
Always is well made
Never fails to fit tight
Decreases costs
Yields more profit per job

Sold Thru Jobbers
Send For Catalog 59A
F. Meyer & Bro. Co.
Peoria, Illinois.

E-Z-ONS

Cost Less
Offer MORE!



E-Z-ON "Snap-Tite" Design No. 29



Special tail piece has retractable snap end bearing . . . eliminates need to bend damper or spring duct to insert damper.

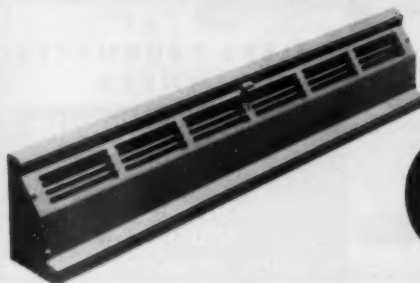
You pay less and get more features with speedy E-Z-ON damper regulators, because they're design engineered to do a better job . . . quicker.

Here's Proof: • Lower Price . . . Means Lower Cost to You
• Double Prongs Mean Double-Grip . . . No chance of swiveling
• Washer is Permanently Attached . . . No loose washer to drop or fall in pipe
• Modern "Swept" Wing Nut is Eye-appealing
• Adds new beauty to installations • Balanced Construction . . . Prevents possible binding of damper in duct.

M. A. GERETT CORP.

724 W. Winnebago St., Milwaukee 5, Wis.
all leading jobbers stock E-Z-ON
Stocked in Canada by THERMIDAIRE CORP. 79 Cumberland St., Toronto

ATLAS #761



**4
Sizes**

BASEBOARD DIFFUSERS

Atlas #761 Baseboard Diffusers available in 4 sizes — 18", 24", 36", & 48", — High output and throw — outstanding pattern for both heating and cooling. Installed with minimum labor — rugged construction that resists dents. A quality product at a competitive price — Immediate shipments — Also available in WHITE!

SEE YOUR
LOCAL
WHOLESALE
OR
WRITE

J. B. SMITH COMPANY,

3327 "B" ST., PHILADELPHIA 34, PA.

Hard to
SODER —
Metals

Aluminum, Cast Iron
Stainless Steel
Galvanized Metals



FLUXES
SODERING
BRAZING & WELDING

L. B. ALLEN CO. INC.

9302 BERENICE, SCHILLER PARK, ILL.—Metropolitan Chicago Area

Skuttle's QUALITY LINE

of Humidifiers and Filters
means **MORE SALES**
MORE PROFITS for you!

Skuttle MANUFACTURING CO. • MILFORD, MICHIGAN



BRUSHES and SCRAPERS
For Cleaning Tubes and Flues

of
**BOILERS • FURNACES
CHIMNEYS**

Whole-
saler:
Write For
Free
Catalog



**WORCESTER BRUSH AND
SCRAPER CO.**
Division of
**MASON-WORCESTER
BRUSH CO.**

38 AUSTIN ST. WORCESTER 1, MASS.



ORNAMENTS
STAMPINGS & SPINNINGS
Zinc Ornaments Available From Stock. Copper,
brass, bronze, aluminum and stainless steel ornaments
made up promptly.

If you don't have catalog K. send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.

wholesaler doings

(Continued)

America (gutters); Follansbee Steel Corp. (terne roofing); Wasco Products, Inc. (flashing); Pop Rivet Div., United Shoe Machinery Corp. (blind rivets); and Grover Machinery Co. (portable gutter machine). Many of the equipment manufacturers featured live demonstrations at their booths so that contractors could see the machinery in actual operation.

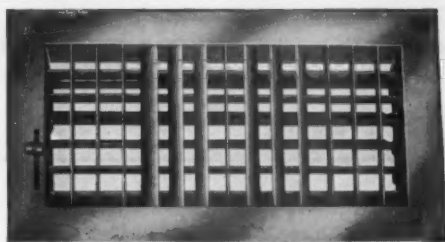
► **SOUTHER STEEL AND ALUMINUM CO.**, St. Louis wholesaler, has developed a plan which enables its customers to lease tools and machinery for a period up to five years. The company points out that this allows a customer to equip his shop with new, high speed machines that will lower costs and speed up jobs, yet does not require that he tie up needed working capital in machinery and equipment.

The firm recently installed a new high speed conductor pipe machine which enables it to supply 3 in. square corrugated conductor pipe in any length the customer requires.

► **DUCKETT DISTRIBUTING CORP.**, air conditioning wholesaler in eastern Massachusetts and Rhode Island, recently held a "get acquainted" meeting at Waltham, Mass. for 70 dealer-contractors in the area. General manager Joseph Grenader described the firm's policies on warehousing, financing, service parts, engineering, training, advertising and promotions. George T. Long, manager of distributor sales for Carrier Air Conditioning Co., analyzed the air conditioning market, pointing out that "exposure to air conditioning is the key to the residential market."

► **THE CINCINNATI STAMPING & Furnace Co.** recently marked its 100th birthday with celebrations held in conjunction with a heating and air conditioning product show. Twenty-four manufacturers participated in the exhibit. To promote their products, each manufacturer was requested to supply letters of invitation, which were mailed by Cincinnati Stamping to over 600 heating and air conditioning dealer-contractors. During the month preceding the exhibit, one set of letters was mailed each day; thus by show date, each dealer-contractor had received 24 invitations to attend.

► **ROBERT A. FRIESTAD** has resigned as president and general manager of Grand Furnace Co., Grand Rapids, Mich., wholesaler. In announcing his resignation, Mr. Friestad said, "I have long had a sincere desire to own and operate a business of my own, which is the reason for this decision." Richard E. Barrett has been appointed general manager to succeed Mr. Friestad.



MODEL AV-7—HIGH EFFICIENCY TYPE
For cooling and heating, four-way deflection
with multi-shutters



ARRO-FLO DIFFUSOR AF-20" and AF-30"
HIGH EFFICIENCY BASE-BOARD TYPE OUT-OF-WALL
REGISTER FOR BOTH HEATING AND COOLING PUR-
POSES. Our distinctive Arro-Line styling blends with any sur-
roundings, measuring only 3 7/8" in height, allowing for ideal
installation under windows.

Write for Catalog

National GRILLE AND REGISTER CO.
10740 Broadway Ave., Cleveland 25, Ohio

FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both.
A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.

No. 12 Smith's Cleat Bender
12" Wide —
No. 18 Smith's Cleat Bender
18" Wide —
No. 24 Smith's Cleat Bender
24" Wide —
No. 30 Smith's Cleat Bender
30" Wide —
Also Universal Cleat Bend-
ing Brakes and Box and
Pan Brakes
Write for nearest
distributor

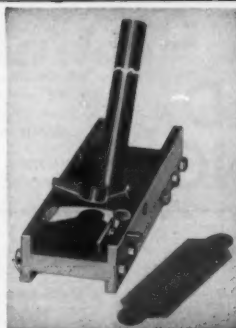


**PERFECT
DRIVE CLEATS**
fit the duct without
the use of a screwdriver.
TREMENDOUS SAVINGS
in erection time and labor.

R. E. SMITH MANUFACTURING CO.
1124 ELIZABETH STREET WAUKEGAN, ILLINOIS



SWIVEL HEAD SQUEEZER TONGS ▲
For closing Government box lock connection on
duct work and all standing seams. Swivel head
makes tongs usable on all four sides, in
either vertical or horizontal position.



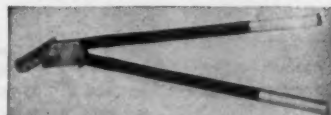
for a complete
line of **SHEET
METAL MACHINES
AND TOOLS**

DRIVE CLEAT NOTCHER ▶
Handles up to 3" wide, 20 ga.
or lighter. Hand operated. Mounts
on bench, or on job with clamps,
or bolts and screws.

REINER & CAMPBELL CO., INC. P.O. Box 5035
Newark 5, N.J.

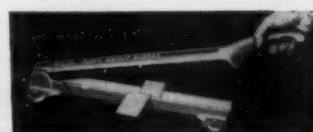
CLIP PUNCH ▶

For fastening slips
or seams on ducts.
Will push a "half
moon" thru 3
thicknesses of 18-
ga. steel. No ham-
mering or flatten-
ing out to fasten
slip to the duct



WONDER BENDER ▶

Bends steel, iron, alu-
minum, brass, copper, etc.
bars up to 3/16"
x 2" . . . rods up
to 3/8" dia. Only 23"
long . . . weighs only
12 lbs. A sturdy tool for
shop or on-the-job use.



**GOT A
SMALL
AD
BUDGET
?**

SEE
AMERICAN
ARTISAN'S
SERVICE
SECTION . . .
Page 133 of
this Issue

GO TO GOETHEL FOR FAST SERVICE ... WE HAVE WHAT YOU NEED



**FULL BLAST
GATES 3"
and up
STOCK**



**HALF BLAST
GATES 3"
to 8"
STOCK**

**FLANGES &
GASKETS
BLOWPIPE
ELBOWS
DUST
COLLECTORS
& FITTINGS
PVC PLASTIC
HOODS —
PIPE — ELBOWS**



**BALL JOINTS
3" to 12" STOCK
PIPING ▶
10' LENGTHS, 7"
& LARGER, 16 ga
and LIGHTER**

Alfred Goethel Sheet Metal Works, Inc.
3218 W. Fond du Lac Ave. Milwaukee 10, Wis.

appointments . . .

► **B. L. LERCH** as sales manager of the Oil and Electric Heat Div., General Controls Co. Mr. Lerch, with the firm for 14 years, was formerly midwestern regional manager. He will be succeeded in that capacity by Robert C. Allen, formerly district manager in charge of the firm's Kansas City, Omaha and Wichita branch offices.

► **GLENN A. BARNES**, formerly sales manager, as executive vice president and general manager of Sequoia Mfg. Co.

► **W. H. TONNER** as sales manager for the HERR-midifier Co., Inc. Mr. Tonner was previously affiliated with Morrison Products, Inc.

► **R. DAVID KISHBAUCH** as sales manager for American-Standard Air Conditioning Div., replacing H. E. Rossell, who has left the company. Mr. Kishbauch has been with the division since its formation in 1953. Prior to his recent promotion, he served as midwestern regional manager, eastern regional manager, and district representative in the Philadelphia area. John P. Farrell has been appointed products

manager for the division and will be in charge of furnace and air conditioning product, product development and related training and service programs.

Obituary

F. O. Schoedinger

F. O. SCHOEDINGER, founder and president of F. O. Schoedinger, Inc., died April 10, 1961 at his home in Columbus, Ohio. Mr. Schoedinger, 88, had undergone surgery in January.

A self-made man, he started his own business while still in his teens and saw it grow into a successful heating and sheet metal wholesaling operation. Well-known for his work in various civic and charitable undertakings, he served for 29 years as president of the board of trustees of Children's Hospital; was a director of the Columbus Cancer Clinic; and was one of the founders of the Columbus Tuberculosis Society. He also had been active in Community Chest and Capital university drives. The university recognized his services by conferring on him the honorary degree of Doctor of Laws and by dedicating a building as Schoedinger Hall.

. . . find what you need quickly
and economically through . . .

CLASSIFIED ADVERTISING

Rates for classified advertising are 15 cents for each word including heading and address. One inch \$7.00. Count seven words for keyed address. Minimum \$2.50 for each insertion. Cash must accompany order. Closing date 20th of month preceding issue.

✓ FOR SALE

FOR SALE — Air Conditioning — Heating. Sheet Metal and Roofing business with wholesale combined. Established 14 years. 4 trucks. \$12,000.00 total. 3,000 sq. ft. building, leases for \$80.00 per month. Located in fast growing Research Triangle Area. Reason for selling — other interest. Write P. O. Box 687, Durham, N. C.

FOR SALE — Operating heating and air conditioning business established 16 yrs., located in growing area of northern Illinois. Average 300 hgt. and air condgt. Installations yearly. Service dept. with list of 5000 customers. Ideal opportunity for fuel supplier. Owner retiring. Address Key 1215, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

FOR SALE — One 10 ft. Power Shear. Geo. Ohio Mfg. A-3 condition. Stainless Blade. Price \$1500.00. Ted Kuck Company, 1616 Broadway, Sheboygan, Wisconsin.

TECHNIQUES OF DUCT WORK ESTIMATING

Learn How the Pros Figure The Big Jobs By Poundage-Square footage — Linear footage — Fittings. This information is ordinarily very closely guarded and is invaluable to the progressive shop or individual.

Send check or money order \$3.50 made out to

W.A.C. Co.

Medway 3, Mass.

✓ FOR SALE

BUSINESS FOR SALE — Company with a nationally advertised, profitable product used in the heating and air conditioning field. Sales approximately \$250,000.00, potential terrific. Owner wishes to retire. Write Key 1217, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

✓ SITUATIONS OPEN

Experienced sales and service men. Positions available in major cities throughout eastern half of U. S. If progress on your present job is slow, this is an opportunity to advance. Must have at least five years experience servicing air conditioning and warm air equipment and contacting building maintenance management. Ground floor opportunity to become service manager with national manufacturer now expanding operations. Unlimited opportunity. Salary and generous profit sharing plan. Send resume and snapshot. Address Key 1214, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

ESTIMATOR WANTED: General Sheet Metal Shop, Mid-West location. Wonderful opportunity for right man. Write Key 1202, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

HELP WANTED — MALE — Experienced heating and air conditioning service man. Also be able to do some sheet metal work. Must furnish references. Good working conditions — well established business — good pay — Write or call: Schmit Pibg. & Sheet Metal, Inc., Pierre, So. Dak. — Phone CA 4-5835.

✓ AGENTS WANTED

REPRESENTATIVES WANTED — for top quality line of registers, grilles, diffusers, etc. Established manufacturer has a number of exclusive territories open. Unusually fine commission basis for manufacturers' agents calling on architects, engineers, contractors, etc. Please reply Key 1213, American Artisan, 6 N. Michigan Ave., Chicago 2, Illinois.

✓ SITUATION WANTED

Experienced salesman. 15 years with one company. Furnaces, hot air and oil — air conditioning. Parts, piping and castings. Instructed and trained personnel in sales field. Reply to 221 Youngstown-Pland Road, Poland, Ohio.

✓ EQUIPMENT WANTED

Wanted: Close out lots of warm air residential heating equipment. Write giving description and price to E. L. Bilek, 2025 Zollinger Road, Columbus 21, Ohio.

✓ LINES WANTED

LINE WANTED — Established New England Manufacturer's Representative desires one more line that offers real opportunities. Address Key 1216, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

... move your products in greater volume
through consistent advertising in this

Service Section...

Rates for display space in the Service Section are \$14.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.



**50 SOFT RUBBER
KNEE PROTECTORS**
EVERY ROOFER SHOULD
HAVE A PAIR.
PRICE \$2.50.
ORDER YOURS TODAY.

JOHNSON
LADDER SHOE CO.
EAU CLAIRE, WIS.



FLOAT VALVES for
Evaporative Coolers, Poultry
Troughs, etc.

Operates in 1" of water.

DAN MOREY

814 S. Robertson
Los Angeles 35, Calif.

EXPECTING AN ORDER?

You'll get it quicker if your postal
delivery zone number is on the order
blank, return envelopes, letterheads.



SPECIAL MESSAGE FOR MANUFACTURERS

... Aladdin had it made!

... if you were in Al's sandals you'd merely rub the old lamp
to sell your furnaces, humidifiers, fittings, gutters, soldering
equipment, or whatever your particular item might be.

Unfortunately, it's not that simple. It takes a lot of hard
work and expensive promotion to meet competition these
days, and in order to do the job properly ALL your prospec-
tive customers must be reached.

There's one sure way to assure complete and economical
coverage and that's to use the American Artisan Service Sec-
tion consistently. The Service Section represents a real buy
when you consider you're reaching over 10,000 GUARAN-
TEED readers each month at a cost of about 1/3¢ for each
reader.

We'll help with the preparation of copy, too. Just send us
literature and we'll supply a copy suggestion at no cost. If
you decide to use space the charge is merely \$14.00 per col-
umn inch per month.

Beats Al's lamp anyway you look at it.

more information available

Your advertisement in this one
column by one inch space costs
only \$14.00 per issue — and we'll
provide copy service

"CUSTOM MADE" SHEET BLANKS "CUSTOM MADE" SHEETS Aluminum Galvanized Cold Rolled

Slit to width — Cut to Length, from
prime coils on our New High Speed
S L E A R. Let us quote on your speci-
fications.

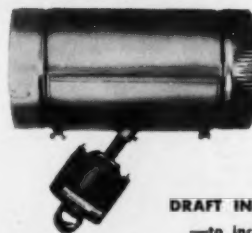
We stock only prime sheet & coil.

**SOUTHER STEEL
&
ALUMINUM CO.**

"THE HOUSE OF COILS"

St. Louis 33, Mo. EV 5-5900

BRUMME BOOSTER FANS



DRAFT INDUCERS

— to increase draft
in low or defective chimneys.

BOOSTER FANS

— to cure "Cold Room"
problems. Write for Cata-
log describing all models of
Brumme Fans.



SINCE 1929

See your Jobber
or write to

BRUMME MANUFACTURING CO.
609 Freeman St., Topeka, Kansas



**Is Faster!
Does A Better Job**



VENT-GRABS save time and money.

• Tighten two bolts (drawband style) on
class B Vent Pipe. Cut hole in sub floor,
insert pipe, nail Vent-Grab to floor.

• 4, 5, 6, 7, 8, 10, 12 inches. Packed 12
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• Solid base automatic 1" fire clearance.
Dealers, Wholesalers, Agents, Write:

LANE SHEET METAL, Inc.

c/o Herb Gibson, 5634 E. Glenmoor Rd.
Hopkins, Minnesota



phone, write, wire AMERICAN ARTISAN

6 North Michigan Ave.
Chicago 2, Illinois
Phone — STate 2-6916

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MEL KNUST (at right) OF DEAN HEATING & AIR CONDITIONING CO. HAS THIS TO SAY ABOUT



"I can sell Metlvent with more satisfaction and still have an overall savings of twenty-five per cent or more."

This entirely unsolicited statement from Mr. Melvin J. Knust of the DEAN HEATING & AIR CONDITIONING CO., of Omaha, Nebraska, typifies the reaction of installers throughout the nation when first they try METLVENT. The entire contents of Mr. Knust's letter to us is quoted below:

"Anytime changes are made in our organization, I feel that these changes must be justified. When we were asked by our local distributor to try Hart & Cooley's new Metlvent chimney, I had two questions to ask. The first question was how does it compare in quality to that which I am now using and the second question was how does it compare in over all costs installed.

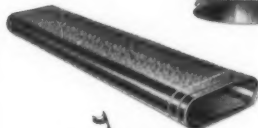
"The answer to both questions came very quickly after we made our first installation. First of all, the quality of the Metlvent is by far superior to any pre-fabricated chimney we had ever used. The installation was made with considerably more ease than anything I had ever seen.

"I can sell Metlvent with more satisfaction and still have an overall savings of twenty-five per cent or more. We feel Metlvent has answered our venting problems."

Ask your H&C Jobbers about METLVENT. You, too, will say "It's the most."



CUTAWAY VIEW



**HART & COOLEY
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN

IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO



NEVER BEFORE an Oil Burner Control Like This!

KWIK-SENSOR

WHITE - RODGERS

Kwik-Sensor uses a new flame detector that makes possible the first practical burner-mounted control. Kwik-Sensor can be applied by the manufacturer to any domestic oil burner in minutes... no adjustments or relocation of the flame detector are necessary, even though the burner may be used in different types of furnaces or boilers, having various types of combustion chambers.



Fast, Simple Installation

The Kwik-Sensor flame detector need only be positioned to pick up the radiant rays of the oil flame. The primary control can be mounted in or on the burner, in the furnace or boiler vestibule, or in any convenient spot. No special engineering required.

New Flame Detector Location

The Kwik-Sensor flame detector is mounted at the blower end of the burner assembly—away from the flame area. Here it operates in a clean, cool stream of air—unaffected by soot, dirt or heat, and where it does not disturb the primary air pattern or interfere with servicing of burner.

Instantaneous Response

Unlike heat-sensing control elements that require a time interval to respond, the Kwik-Sensor is a flame-sensitive resistor which reacts *instantly* to flame ignition or extinction. It responds *only* to the radiant rays from the oil flame.

Complete Factory Wiring

Kwik-Sensor makes possible a *fully wired* furnace, burner or boiler unit... all quality controlled *in the factory*. This means production-line economies... simplified inventories... and the elimination of problems long associated with the many variables of in-the-field stack mounted control installations.

Write now for specifications, dimensions, wiring diagram, and additional facts.



Complete Control Package

Kwik-Sensor combines with new D'LUXline Thermostat of straight-line design to provide a perfect control package for domestic oil burners.



WHITE-RODGERS

St. Louis 23, Missouri
9797 Reavis Rd.

Toronto 8, Canada
611 Gerrard St. East

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AMERICAN ARTISAN

June 1961

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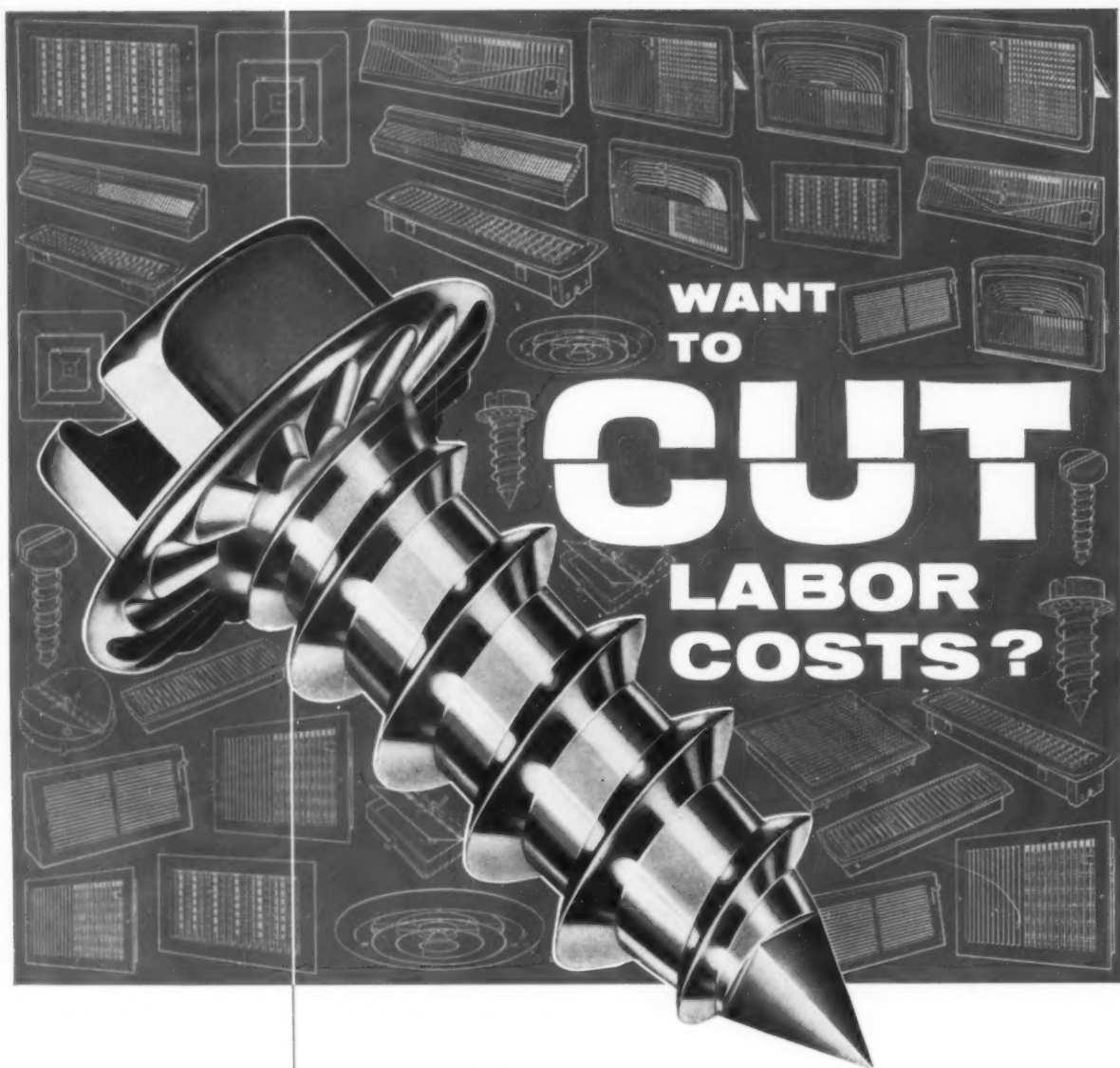
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WANT
TO
CUT
LABOR
COSTS?

Use Air Control **S P E E - D** Screws

the self-drilling sheet metal screw that cuts down manhours!

SPEED Screws cut fastening time in half. The power-driven SPEED eliminates punching and drilling — drills its own hole as it fastens. The precision-engineered, diamond-shaped point enables the SPEED to make faster, cleaner starts — even in heavier gauge metals. The integral, serrated washer acts as a brake to prevent over drilling and stripping the threads. SPEED Screws are available in a variety of standard sizes, in three packs to fit application requirements. Price? Low!

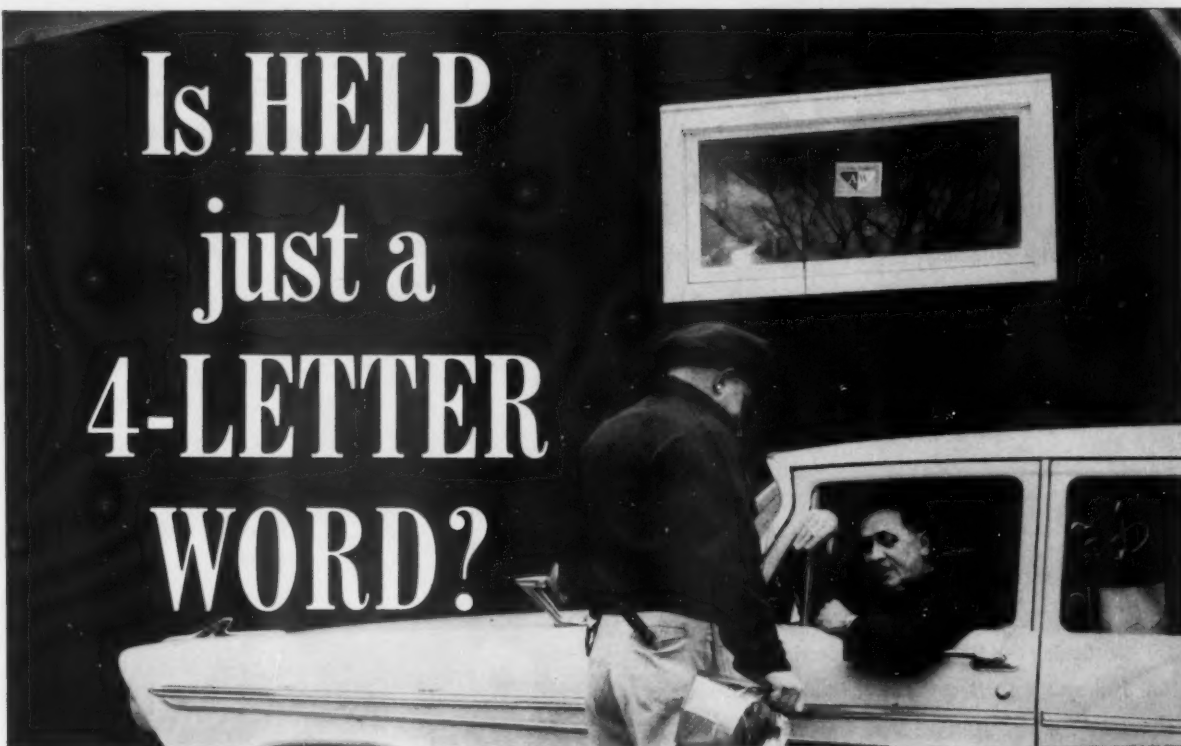
The SPEED Screw is another example of the progressive engineering found in all Air Control Products. Write for SPEED Screw Bulletin 275-AC or for Catalog 60-AC which describes the complete line of Air Control Registers, Grilles and Diffusers!



AIR CONTROL PRODUCTS, INC. 161 CENTER STREET, COOPERSVILLE, MICH.

West Coast Warehouse: Leigh Industries (California), Inc., 649 S. Anderson Street, Los Angeles, California. **MADE IN CANADA BY:** Leigh Metal Products Ltd., 72 York Street, London, Ontario. **Prairie Provinces Affiliate:** Leigh Products Western Ltd., 313 Archibald Street, St. Boniface, Manitoba.

Is HELP just a 4-LETTER WORD?



IN every industry there are companies better at talking than acting . . . companies long on promises before they get your business, but short on "follow-through" once your account is signed, sealed and delivered.

If that description sounds familiar, we suggest you take a look at International . . .

When you do, we think you'll find a company that goes all out to give its dealers "on the spot" help . . . No matter where you are there's an International distributor and/or company representative nearby, *instantly available* when needed.

You'll also find an outfit as free of red tape as it can get . . . The line of communication between your distributor and the International factory is always open. That means fast decisions and constructive help on any sales or service problem.

Most important, you'll find a company *big enough* to incorporate the latest technological advances in its heating and cooling line . . . *small enough* to consider your business a vital and valuable part of its own.

We invite you to find out how many different ways you benefit when you join up with International. Write today for full details to: International Heater Company, Utica, N. Y., Dept. A-61.

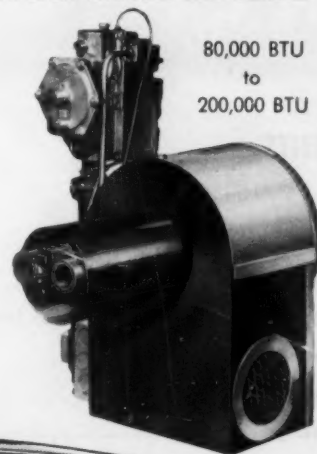
GAS AND OIL HEATING
COOLING
ELECTRIC FURNACES
AND HEAT PUMPS



NEW POWERSHOT

A POWER GAS BURNER

for converting difficult oil-fired units
such as horizontal furnaces or
down-draft furnaces and boilers.



80,000 BTU
to
200,000 BTU

HEATING
COOLING

AMERICAN ARTISAN

- Warm Air Heating • Sheet Metal Contracting
- Air Conditioning • Ventilation And Dust Removal

JUNE 1961

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SUBSCRIBERS—*Change of Address:* Publisher needs five weeks' advance notice, mail address from current issue envelope, and new address with city postal zone number. Mail to . . . American Artisan, 6 N. Michigan Ave., Chicago 2, Ill., U. S. A.

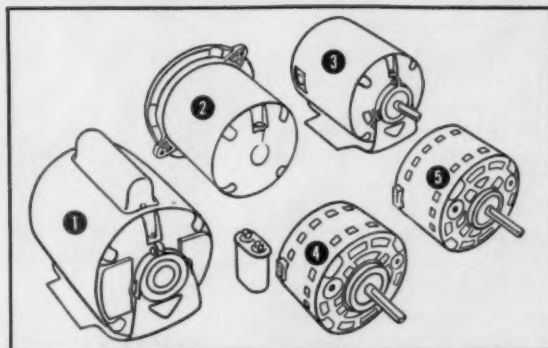
POSTMASTER: *When Magazine Is Undeliverable:* Send Form 3579 to publisher at above address. Include city postal zone AND DATE on last line under mail address on envelope as our key.

When you need a motor for heating equipment **CHANCES ARE 100 TO 1 IT'S HERE**

... because these motors represent General Electric's complete line of years-ahead motors for oil burners, hot water circulator pumps, and belt- or direct-drive furnace blower applications.

They'll provide *extra reliability* because of their built-in quality, the result of G-E engineering know-how and manufacturing experience. You'll find them *easy to install*—because they're light and small, and built with your requirements in mind. And General Electric offers *fast, local service*—the result of a nationwide network of motor service stations, backed by 38 General Electric service experts who keep these stations up-to-date on motor service techniques.

That's what we mean when we say you get **MORE THAN A MOTOR** with General Electric Form G motors. You'll find it pays to specify General Electric Form G motors on the heating equipment you install. And replacement motors are available at your local G-E distributor. For more information write to Section 722-10, General Electric Co., Schenectady 5, N. Y.



- | | |
|---|---|
| 1 Capacitor-start motor for belt-driven applications | 2 Oil burner motor |
| 3 Split-phase motor for hot water circulator pumps and belt-driven applications | 4 Permanent split-capacitor motor for direct-drive applications |
| | 5 Shaded-pole motor for direct-drive applications |

Progress Is Our Most Important Product

GENERAL  ELECTRIC

the editor's notebook

Thumbing Through This Month's Artisan

... we find a detailed report on the design, fabrication, and installation of a duct system of sheet plastic materials for the chemistry wing of the new science building of the University of Wisconsin, Milwaukee division. *How new Shop Techniques Speed Plastic Duct Fabrication* tells how The Kramer Company, Milwaukee sheet metal contractor, facilitated the shop fabrication of the duct sections by building special pieces of equipment to bend and form the plastic material into either round, square, or rectangular shapes. A water cooled brake (a small quantity of water is circulated through the top leaf) prevents the brake from becoming heated, thereby preventing the material from sticking. Other special equipment used includes a warming cradle and squaring rack.

Selecting

... equipment capacity to meet each tenant's needs was only one of the problems encountered by the Alexander Heating & Sheet Metal Co., Waukesha, Wis., during a recent installation. In all, 32 separate systems were required for the four-story structure, as explained in *Packaged Equipment Supplies Year 'Round Comfort for Multi-Story Office Building*. Because tenants varied in the size and type of business, each rented area was provided with its own heating and cooling system with individual control. Two equipment rooms were located on each floor. In several cases, with up to nine rented areas on each floor, as many as five heating and air han-

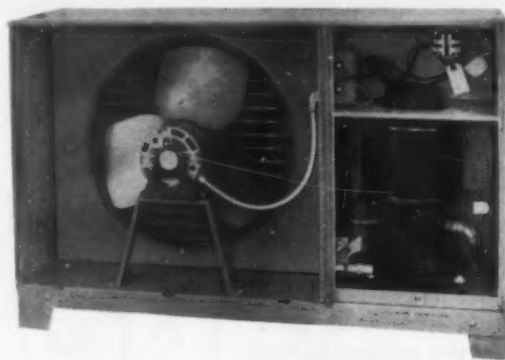
NOT
beatnik
BUT
REAL COOL!



**FOR COMBINATION HEATING and COOLING
or ADD-ON JOBS**

**QUIET,
COMPACT,
EFFICIENT,
SERVICEABLE UNITS**

at competitive prices



WRITE..... ... for information
and name of
nearest distributor

AIR-EASE

THE JOHNSON FURNACE COMPANY

2129 WEST 117th STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

dling units were installed in one machinery room. In these small areas, space became a major problem for locating the equipment. The variety and multiplicity of ducts feeding to and from the mechanical equipment room also limited working area. Techniques for the installation of perimeter air diffusers, fabrication of ductwork, and location of cooling coils and remote condensing units are also explained.

Seven

... prerequisites made by a customer and how they were met in a recent installation handled by McDaniel Air Conditioning Inc., Shreveport, are illustrated in *How Packaged Units Solved Department Store Air Conditioning Problem*. Within five weeks 19 packaged summer air conditioners had to be put into operation in a department store located in a building formerly used as a warehouse and truck repair shop. Other requirements included: keeping the costs within the budget of \$1 per sq ft; offsetting the solar heat gain load of thirty-three 6 x 10 ft skylights; removing cooling coil condensate without floor drains; and providing zone control without the benefit of partition walls.

Insurance


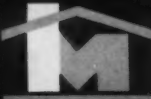
... protection against accidents for both employees and equipment during and following a job is a contractor's best safe guard against exposure to accident liability. W. T. Williams, an independent insurance agent specializing in construction work, points out insurance benefits and outlines particular coverage needs in the article, *When, How, and*

WHATEVER THE FUEL...WHATEVER THE JOB... THE BIG MAN IN VENTING IS A METALBESTOS DEALER

Why? Because he has a vent for every installation and the know-how for every job — residential, commercial and industrial. There's Metalbestos Gas Vent, 3" to 24", for quick, sure installations... the Metalbestos Chimney for liquid and solid fuels, fireplaces and incinerators. The Metalbestos Dealer is backed by trained field experts, a Venting Laboratory Serv-

ice, and the latest data at his fingertips for fast, economical installations—the new METALBESTOS GAS VENT TABLES AND HANDBOOK. For the full story, ask a nearby Metalbestos Distributor or Sales Representative, or write Dept. A, P.O. Box 137, Belmont, California.



  **METALBESTOS** DIVISION
WILLIAM WALLACE COMPANY
BELMONT, CALIFORNIA
MANUFACTURING PLANTS IN BELMONT, CALIFORNIA • LOGAN, OHIO

the editor's notebook

(Continued)

Why Insurance Can Be Your Best Protection. The article begins with an explanation of hold harmless clauses as applied to both subcontractors and prime contractors. The article continues by distinguishing between the two ways contractual liability insurance can be used — one is on a per contract basis, and the other is through having blanket contractual liability with a general liability policy. Mr. Williams maintains that a comprehensive policy written on an occurrence basis, with both a completed operations (for injury or damage arising out of defective workmanship) and a blanket contractual clause with adequate limits offers the best protection that can be expected. This is the first of a two-part series dealing with general liability insurance protection.

What's Your Score On 'Getting Along'?

IT'S ALWAYS A GOOD IDEA to consider any suggestions for getting along better with employees and customers.

Getting along with others is, like pie baking, an art and not a science. Nevertheless, in each case, if you follow certain rules and have a little crust, you're likely to get good results. Trouble is, according to Eugene J. Benge, writing for the Bureau of Business Practice, in human relations you bump into so many do's and don'ts that you get as confused as an infant in traffic.

You need to remember but three basic principles — and put them into practice. These are fundamentals which, over several decades of human relations research, have been noted again and again in people who are successful in

Custom designed

for Sectional type Gas Burners...

THE MODERN CARRY-OVER TUBE

engineered by you to fit your product!

Now you can get efficient, low cost lighting for your sectional type burners . . . the Modern "Carry-Over" Tube provides integral lighting of sections with a positive flame track between the burners and the pilot. The Modern "Carry-Over" Tube is a stainless steel tube $\frac{3}{8}$ inch O.D. and is available with either single or double rows of lanced ports extending over the active lighting length. The Modern "Carry-Over" Tube is not an attachment. It is engineered by you to fit your unit and be a smoothly functioning component of your product . . . Write for complete details—no obligation.

also for safe, convenient and dependable "Outside Lighting" . . . check the advantages of the Modern Lighter Tube featuring "Push-Button" pilot lighting.

MODERN LIGHTERS, INC.

South Lyon, Michigan

WRITE FOR LITERATURE



the editor's notebook

(Continued)

persuading, in leading, in getting acceptance.

These three principles are:

- 1) The principle of communication.
- 2) The principle of recognition.
- 3) The principle of personal growth.

The principle of communication can be broken down into six approaches, which are:

- a) It's How You Say It.
- b) Dishing Out Criticism.
- c) To Persuade, Teach.
- d) Become an Extrovert.
- e) Promises.
- f) Listen!

Your choice of words is extremely important. Select action-inciting words to get approval. Words like "Best," "Biggest," "Beautiful," "Forever" are excellent for use at the sales level.

When applying the principle of recognition, there are five potent forces that can be successfully used. These are:

- a) Use of "Pedestal Words."
- b) Praise.
- c) Memory for Names.
- d) Interests.
- e) Participation.

Pedestal words might be defined as words that make the other fellow feel important, for example: "May I?" "I'd like your advice," "You are so right," "I agree with you," "Please," and "Thank you."

Principle three — personal growth — takes in many factors, among them:

- a) Your assets and liabilities.
- b) Your personality.
- c) Handicaps.
- d) Emotional maturity.
- e) Inferiority.
- f) Dominance.

To check your assets and liabilities, ask yourself about these traits:

- 1) Do you smile a lot?
- 2) Are you distant with others?

More proof that Lockformers Never Wear Out!

...Two good examples:



**NAROWETZ HEATING & VENTILATING CO.,
CHICAGO**

This 28-year-old Lockformer—ancient as machine tools go—is still earning its “keep” in daily lock production. Opening rolls and V-belts have been replaced—but that’s *all*. To replace this Lockformer with a new machine, simply because it *looks* old, would be a waste of money.

**GALESBURG SHEET METAL WORKS,
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This is a 1940-vintage Lockformer “22” which undergoes constant use in rolling locks for 10 mechanics. M. P. Lauerman, President, reports: “Age has nothing to do with the performance of this machine. We have no intention of replacing it . . .”

Nor do Lockformers become obsolete—we’re still replacing parts *from stock* for these and other old-timers. We don’t redesign Lockformers every year—changes are made only to improve quality, performance and speed wherever possible. That’s another good reason why you ought to buy one . . . or another one. Send for our complete catalog and see the full line-up of Lockformer sheet metal machinery.



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TIME SAVING, MONEY MAKING EQUIPMENT

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In Canada: Brown Boggs Foundry & Machine Co., Ltd.,
Hamilton, Ont.

the editor's notebook

(Continued)

- 3) Tactful?
- 4) Patient?
- 5) Helpful?
- 6) Do You praise others?
- 7) Are You friendly?
- 8) Tense?
- 9) Dramatic?
- 10) Do You Have peace of mind?
- 11) An even disposition?
- 12) Are You impatient?
- 13) Calm?
- 14) Brutally frank?
- 15) Lacking in dash?

Good Employee Worth Higher Pay He Asks

SOMETIMES IT PAYS to reconsider the ceiling you've set as the salary you're willing to offer a new employee. According to Dr. George Odiorne, whose research work was reported in the Industrial Psychology Newsletter, the difference between getting the worst employee and the best employee is a matter of 15 percent in actual pay. Yet, the best employee often produces twice as much as the worst. By paying 30 to 40 percent below the market, you practically guarantee poor workers.

There are enough problems in the contracting phase of this industry without taking on more. If it's been shown that it costs less for better employees, then it becomes a waste of money to hire poor employees.

Don't Be an Insurance 'Do-It-Yourselfer'

HERE'S A THOUGHT brought out at the annual convention of the Associated General Contractors of America which sheet metal contractors should consider carefully. The speaker, William E. Pullen, president of U.S. Fidelity & Guaranty Co. of Balti-

Here's the Sheet Metal Man's Band Saw!



...IT'S FAST

Breezes through the most complicated patterns—fast and easy. Cuts 50 to 70 stacked sheets at speeds up to 15 inches per minute. Eliminates set-up time and expensive die costs.

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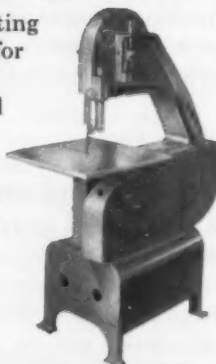
Lockformer wheel support and carbide blade guides assure precision accuracy on every job—no lead-off, no blade twist on small radii, work is easy to handle, easy to back out.



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Outperforms band saws costing three times as much. Pays for itself on the first few jobs. 3-wheel Model 24S with full 24" throat only \$795*. 2-wheel Model 14SM with 13½" throat only \$495*. Be convinced. Write for latest catalog today.

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the editor's notebook

(Continued)

more, said: "Don't skimp on insurance. To do so makes you the insurer either as to hazard or limits. Your business is hazardous enough without your getting into ours, which exists to pay losses you can't stand.

"In our opinion, the most important action you can and should take on insurance, if you have not already done so, is to install a comprehensive insurance program for your company based on a thorough audit of your operations and points of exposure, designed by a competent insurance adviser, reviewed and revised at regular intervals and always before bidding on any job of consequence, particularly if it is an out-of-state job."

Such a program, Mr. Pullen said, "is well worth all the time it takes to initiate and maintain and, in the long run, it will save you time, money, and possibly serious loss."

Another suggestion he offered was this: "Don't be a 'do-it-yourselfer' in insurance. There are literally hundreds of kinds of insurance policies designed to meet myriad needs of our complex society, and there is no man, even in the insurance business and regardless of the depth of his experience, who is an expert in all these lines. Our company has long had as its slogan: 'Consult your independent insurance agent or broker as you would your doctor or lawyer.'"

Forgery Most Common Method of Looting

NOT LONG AGO, a dealer-contractor told me about a loss of \$6900 to a trusted bookkeeper who left town without quitting. A check of the records indicated that the loss had been accumulated over a period of two years.

only
this
much
more



buys this much difference



The little extra you pay for Purolator filters buys features and performance you just don't get in ordinary filters. The picture shows you the difference; here's what this difference means to you:

- ① Nozzles last longer because the Purolator Micronic element filters out abrasive particles as small as 0.0005 of an inch. A waste-type filter medium, no matter how much it's compressed, simply can't filter that fine, even when it's new.
- ② Filters last longer (a year or more without servicing) because every Purolator filter has over 200 square inches of filtering surface, enough to filter over 7,000

gallons of fuel oil without replacement.

- ③ No channeling or unloading, ever, because the Micronic element is precision made from a single pleated sheet of resin impregnated cellulose that resists water and acid, won't shrink, stretch, distort, flake or deteriorate.
- ④ No spillage, no air leaks. The depressed head on the Purolator housing eliminates spillage when servicing. The recessed gasket seal makes an airtight fitting between case and head.

And because Purolator filters filter better, longer, you make fewer trips, have fewer problems fulfilling your service contract. For full information, write to Dept. 2577.

*Filtration
For Every Known
Fluid*

PUROLATOR
PRODUCTS, INC.

RAHWAY, NEW JERSEY AND TORONTO, ONTARIO, CANADA

the editor's notebook

(Continued)

According to one source, there are 400 basic looting operations. The most common is some form of forgery — changing figures on sales slips, checks, vouchers, records. One of the most brazen, recommended for payroll clerks only, is to write occasional extra pay checks for one's self, which the treasurer signs automatically without reading the payee's name on the check.

Must Compete With Big Firms for Key Workers

ONE reason why it is good business for a dealer-contractor to provide a deferred compensation plan for his key employees, according to the Small Business Administration's Management Aid 107, is the fact that the dealer-contractor must compete for management talent as well as markets, materials, and money. He must produce a good product and be able to sell it at a competitive price. Managerial skill and know-how are of utmost importance in accomplishing these purposes. Large firms usually have the advantage of being able to pay more, to offer a wider opportunity, and to provide a broader range of fringe benefits with perhaps more job prestige. Consequently, a small concern has a twofold problem — attracting good men, and keeping them once they are hired. Through deferred compensation it is possible for a small firm to cope with some of these large-firm advantages.

To illustrate, suppose your firm wants to get a key employee to fill an important post. This man may be participating already in a generous pension plan. He may be covered by a substantial amount of group life insur-

NEW! Thin Core Grilles for Doors — Partitions 1/4" to 3/4" Thick!



- MINIMUM INSTALLATION TIME
- COMPLETE • NO WOOD MOLDINGS TO ADD!

Grille designed specifically for thin doors and partitions. Can be installed in just a few minutes time. Almost a half-inch extra on sides for positioning. Telescoping auxiliary frame fastens to grille with posts and screws. Clamps tight. All steel. Rattleproof. No vision, with 80% free area. Available with or without frame, wide range of sizes. Gray prime coated, or Hammertone finish in gray or bronze.

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Dept. A-6

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Kansas City 27, Mo.

the editor's notebook

(Continued)

ance, group hospitalization and major medical, accident and health services. He may even be involved in stock ownership plans.

Your small concern will have a problem in hiring such a man.

Maybe you can bid for his services by offering the inducement of a larger salary. But salary increases don't always mean very much in these days of steeply progressive income tax rates. However, if you supplement the annual salary offer with a generous deferred pay agreement, the after-retirement security growing out of it may well be all the inducement you need. This can be particularly true if you provide substantial death benefits for the family by making the deferred payments to the wife and children in case the man dies prematurely.

In the same vein, suppose you have a valuable key man whose loss would be damaging to the successful operation of your business. What can you do to hang on to him? One answer is to arrange things so that his lot will not be bettered if he shifts to a large company. When his retirement years are made secure and when adequate provision is made for his wife and children in case of his premature death, there is much less tendency for a man to look longingly at other job opportunities.

How deferred compensation operates was briefly covered in this column in the two preceding issues of *American Artisan*. This subject will be covered in more detail beginning with next month's issue. Look for it in this column.

Clyde M. Barnes

Editor

Why does Lennox put all its eggs in your basket?

Indoor comfort is not a "sideline"—it's 100% of Lennox' business



The importance of dealers as a source of information is never underestimated. That's why John Norris (right), president of Lennox, maintains personal contact with dealers across the land. Many times suggestions from dealers have led to major improvements, or additions to the line which now includes gas, oil, and electrical heating systems, heat pumps, dual-fuel industrial heaters to 2,000,000 Btuh capacity, and air conditioning units from 2 to 25 tons.

We aren't concerned with making TV sets, dishwashers, sealing wax or anything else except central heating and air conditioning equipment.

It is our belief that this is important enough to deserve the complete attention and facilities of the manufacturer. Our entire manpower resources and 10 factories are devoted strictly to the business of indoor comfort. Your business.

This concentration in your industry gives you many dealer benefits—in addition to equipment with a reputation for quality. Factory trained sales and technical men are at your disposal—to help when you have special problems. The industry's finest schools are made available to your men—to improve their technical knowledge and sales ability. You get more merchandising and advertising support than any other manufacturer supplies.

But then—there are so many advantages of being a Lennox dealer we suggest you get the full story. Write your nearest Lennox factory or Lennox, 418 S. 12th Ave., Marshalltown, Iowa. No obligation.

Don't be satisfied with less than

LENNOX

HEATS, COOLS, TREATS AND MOVES AIR



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IN CHURCHES



IN SCHOOLS

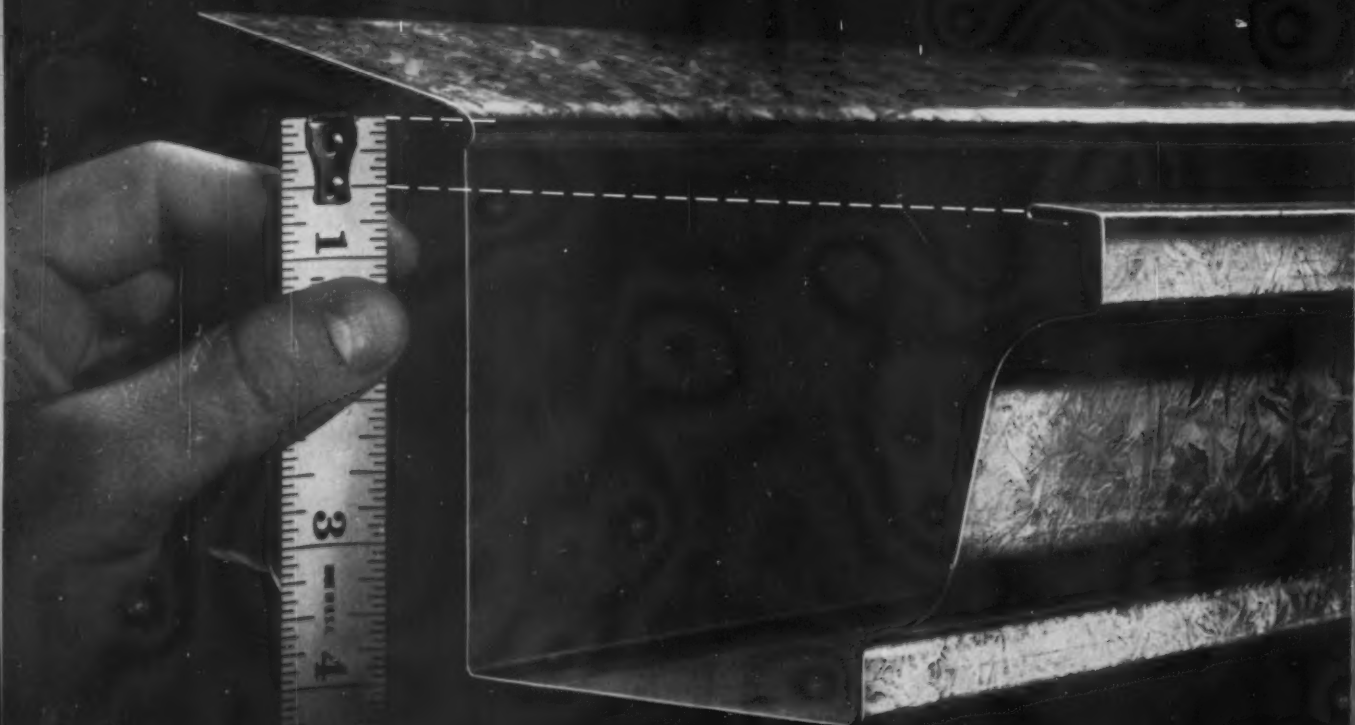


IN COMMERCE

LENNOX Industries Inc., est. 1895—Marshalltown, Des Moines, Ia.; Columbus, O.; Syracuse, N.Y.; Decatur, Ga.; Ft. Worth, Tex.; Salt Lake City, Utah; Los Angeles, Calif. LENNOX Industries (Canada) Ltd.—Toronto, Montreal, Calgary, Vancouver, Winnipeg

EXTRA HALF-INCH ADDS TO ROOF PROTECTION

Front is $\frac{1}{2}$ " lower than brake line — permits overflow if gutter becomes clogged. Prevents water from backing up under roof.



Milcor Pre-flanged Highback Gutter CUTS YOUR JOB COSTS 3 WAYS!

1 You eliminate flashing! Back flange of gutter covers and protects the edge of the roof. Makes a separate roof edge unnecessary.

2 You eliminate a brake operation! Roof flange is already formed on every length of gutter.

3 You finish jobs faster! Style K Hanger provides fastest installation method in use today.

Try Milcor Pre-flanged Highback on your next job. 4" and 5" sizes; 10-, 20-, 25-, 30-, and 32-ft. lengths; 28- and 26-ga. Ti-Co galvanized steel. See your jobber or write us for further information and prices.

Milcor Style K Gutter Hanger is hooked into open hem of front bead of gutter and nailed to roof, fastening front and back of gutter in one operation. Concealed feature simplifies gutter painting. This is just one item in the Milcor line of top quality roof drainage products. Look to Milcor for all sheet metal needs.



You can stake your reputation on a Milcor installation!

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LOS ANGELES, MILWAUKEE, NEW ORLEANS, NEW YORK, ST. LOUIS

WHAT'S HAPPENING...

Launch Gas Air Conditioning Sales Campaign

NEW YORK CITY — The gas industry expects to increase air conditioning sales by 70 percent during 1961, according to the American Gas Association.

To plan this stepped-up emphasis on air conditioning, 75 gas companies throughout the country sent 260 representatives to a series of AGA-sponsored meetings held recently in Birmingham, Dallas, Chicago and Boston. Executives attending were told that the gas air conditioning market is practically untapped, and speakers predicted that in the next 12 to 18 months, new units would be manufactured which will greatly expand the market.

It was stressed that an aggressive air conditioning sales program is of primary importance to every utility company and that an adequate sales force is essential.

Speakers included W. G. Wepfer, sales manager, Arkla Air Conditioning Corp. and David W. Hoppock, vice president in charge of sales, Bryant Mfg. Co.

Oil Heat Group Plans Vigorous Promotion

NEW YORK CITY — Oil heating promotion programs planned by the National Oil Fuel Institute were recently outlined by Glenn L. Werly, president of the newly formed organization. Among the aggressive new programs planned, Mr. Werly said, are expanded advertising and market research projects, stepped up education of personnel, and wider action in the field of codes, ordinances and

Report Silver Shield Activities in 6 Cities

CLEVELAND — Two spring Silver Shield meetings for dealer-contractors were recently held — one in New Orleans, the other in Cleveland. The spring meetings are annual one-day get-togethers during which dealer-contractors from various cities meet to compare notes and discuss their respective local Silver Shield activities.

The New Orleans meeting, for representatives of Indoor Comfort bureaus in southern cities, was chairmanned by Charles Graham, vice president of the Silver Shield Comfort Bureau of Davidson County, Nashville, Tenn.

Glen Rynbrand, executive secretary of the Kalamazoo Indoor Comfort Bureau, presided at the Cleveland meeting for dealer-contractors in northern cities.

Sales Course at Lima

The National Warm Air Heating and Air Conditioning Association reports that a 16-hour Silver Shield sales training course

was recently presented at Lima, Ohio. The course, an important part of the Silver Shield program, was developed by NWAHACA to help dealer-contractors present the Silver Shield comfort story to homeowners. Eighteen Lima dealer-contractors and their employees participated in the program and took part in practice sales presentations.

Idaho Dealers Meet

Another Silver Shield meeting was held recently in Blackfoot, Idaho, where dealer-contractors gathered at the Oddfellows Hall to learn details of the Silver Shield program. Cooperating with the national association in the presentation was a Silver Shield action committee consisting of Charles Jensen, Vogt Sheet Metal Co.; Leroy Jacobson, Jacobson Fuel and Heating Co.; Darrell London, Conan & London; Richard Merrill, Merrill Heating; John Day, Inter-Mountain Gas Co.; and James D. Cawley, Heating & Air Conditioning Co.

Long Islanders Get Details

Long Island dealer-contractors also recently had an opportunity to hear NWAHACA officials describe the Silver Shield program and explain how it will benefit both the warm air heating industry and the general public. Held at Commack, the Long Island program was presented with the aid of the Suffolk County Silver Shield action committee consisting of: James Cowie, North Shore Sheetmetal Co.; William Barrett, Barrett Heating & Air Conditioning Co.; Everett E.

(Continued on page 19)



HODGEPODGE

UNDIVIDED RESPONSIBILITY is one of the big reasons it pays to standardize on Honeywell matched controls. You don't have to deal with a hodgepodge of different suppliers to meet your automatic control needs. Instead, you can look to *one* dependable source for your complete line of controls.

And look what else you get! **CUSTOMER RECOGNITION**—seventy-six years of leadership have made Honeywell a name they know and respect. **SIMPLIFIED INVENTORY**—there's a quality Honeywell control and an All-Honeywell control system for every application. **ON-THE-SPOT SERVICE**—with offices in 112 cities, all

staffed by experienced sales and service engineers, you'll always have expert assistance and the right replacement controls when and where you need them. **TRAINING SCHOOLS**—your service and installation men will increase their knowledge of the Honeywell line and get the latest information on residential controls at Honeywell training sessions held in your own town or area. Over 100,000 men attend these schools every year.

It all adds up to bigger profits for you. So call your nearby Honeywell office today. Or write Honeywell, Dept. AA-6-89 Minneapolis 8, Minnesota. In Canada, write Honeywell Controls, Limited, Toronto 17, Ontario.

HONEYWELL INTERNATIONAL: Sales and service offices in all principal cities of the world. Manufacturing in United States, United Kingdom, Canada, Netherlands, Germany, France, Japan.



OR HONEYWELL?



THE HONEYWELL ROUND sets the standard for thermostat excellence, just as the four controls at the right are typical of the quality controls that make up All-Honeywell systems. Whatever your application—forced air, hydronics, gas or oil—there's an All-Honeywell control system that will do the job best!



V 81
Gas Valve



L 498B
Fan Limit Control



RA 816
Oil Burner Relay



L 8024
Aquastat*

Honeywell

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First in Control
SINCE 1888

THE *Malco* SAW

the
"ULTIMATE"
IN SAWING



NEW 2-SPEED No. 265

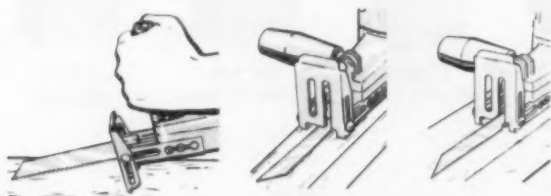
MULTI-DIRECTIONAL CUTTING: Lets operator work in any cutting position with minimum effort. Blades can be mounted in six different positions for regular or flush cutting. Exclusive blade clamp prevents blade "pulling out" while sawing.

2-SPEEDS: For cutting full range of materials. "HI" speed for wood, composition materials; "LO" speed for cutting a wide range of metals.

VIBRATION-FREE: Perfect balance of exclusive counterweight action, plus precision ball and needle bearings, results in smooth, powerful, vibration-free cutting.

TWO-POSITION SHOE: Adjustable for both regular and exclusive vertical or horizontal flush cutting. Broad bearing surface provides complete guiding stability for any cutting position. Blade life increased by moving shoe in or out bringing different tooth sections of blade to bear on work.

EXCLUSIVE . . . The only saw of its kind in the world designed for both vertical and horizontal flush cutting without additional attachments!



**3356 GORHAM AVENUE
MINNEAPOLIS 26, MINNESOTA**

EXCLUSIVES

VIBRATION FREE

100% FLUSHCUTTING

LOCK-IN BLADES

6 CUTTING POSITIONS

SPEEDS OF 2200 & 3000

WINDOW BRUSHHOLDERS

5 POSITION HANDLE

OTHER FEATURES

2 POSITION SHOE
POWERFUL MOTOR
COOL OPERATING
FINEST BLADE
SELECTION



MALCO SAW KIT No. 265K

Complete kit includes the Malco No. 265 Saw with 2 different blade chucks and a fine assortment of Malco "Lock-In" Blades, all nicely packed in a sturdy, fitted carrying case. (Box permits carrying saw with 6 inch blade in chuck).

WHAT'S HAPPENING . . .

(Continued from page 15)

NOFI Occupies New Offices

NEW YORK CITY — The National Oil Fuel Institute, recently formed by the merger of the National Fueloil Council and the Oil Heat Institute of America, has opened offices at 60 E. 42nd St., New York City.

Gas-Fired Water Heater Sales Up

NEW YORK CITY — Factory shipments of gas-fired water heaters jumped 20.7 percent from February to March, the Gas Appliance Manufacturers Association reports. In the first three months of this year, manufacturers shipped 682,200 heaters, 0.7 percent more than the total shipped in the first quarter of 1960, GAMA states.

Hold Silver Shield Meetings in 6 Cities

(Continued from page 15)

Prime, Prime Heating & Air Conditioning Co.; Dick Paul, Twin County Heating & Air Conditioning Co.; Bruce Kyte, Kyte Heating & Air Conditioning Co.; Frederick Robbins, Robbins Heating & Air Conditioning Co.; and A. Burns, Burns Heating Supply Co.

In Billings, Mont., dealer-contractors met at the Montana-Dakota Utilities Co. to hear an explanation of the Silver Shield promotion and organization program. Cooperating with NWAHACA in the presentation were Don Steeves, Montana-Dakota Utilities Co.; Walter Ryniker, Ryniker Steel Products Co.; Robert McCann, Empire Heating Co.; and Lashley Drell, Drell Heating Co.

Terms Air Conditioning Industry 'Bright Spot' in Business Picture

WASHINGTON, D. C. — "The air conditioning and refrigeration industry continues to be a bright spot in the nation's overall business picture," R. K. Serfass, president of the Air-Conditioning and Refrigeration Institute, told directors attending a recent board meeting. Reviewing final figures for 1960, Mr. Serfass pointed out that the industry continued to show progress during a period when many other segments of the economy suffered set-backs in varying degree.

In the field of unitary air conditioning (including all central residential equipment as well as some smaller commercial units), manufacturers during 1960 shipped a total of some 336,000 units—an increase of about 10 percent over the 1959 figure—according to ARI. More than 60 percent of that total went into residential installations, according to institute estimates. During the first quarter of 1961, shipments were up some 20 percent over the corresponding period of 1960, ARI figures show.

It was pointed out that the growing trend toward construction of air conditioned low and medium priced homes by speculative builders probably will contribute toward a steepening of the curve representing sales of this type of equipment.

"We believe that the 60's will bring about as great a change in America's living and working habits as did the 20's" Mr. Serfass said. "And much of the change will not only be accompanied by, but will be made possible by, the products of the air conditioning and refrigeration industry."

"Fortunately, our industry already is geared to take advan-

tage of this growth as it develops. Many of our plants have been adding capacity somewhat in excess of their current needs in anticipation of this growth, and have plans for further expansion as required. This is good industry planning. ARI is sponsoring a movement to provide more trained installation, service and maintenance men which, we believe, is also good industry planning. We are ready to meet what we feel will be a decade of challenge. Although the sales trend has been favorable, the extreme competitive pressures have prevented development of an equally favorable profit trend. It is essential that the industry, through its individual members, spend more on research to overcome this cost-price squeeze."

Report Record Sales Of Galvanized Sheets

NEW YORK CITY — Direct shipments of galvanized steel sheets to the air conditioning and ventilating industries during 1960 increased by 18 percent over 1959, according to the Committee of Galvanized Steel Producers. The report is based on American Iron and Steel Institute figures. The committee emphasized that the total of 148,918 net tons of galvanized sheets shipped to this market represents only direct shipments for use in commercial and industrial air conditioning and ventilating systems. The figure does not include galvanized sheets purchased for this use through warehouses and distributors for ductwork.

(More news on page 22)

Your customers will BUY.



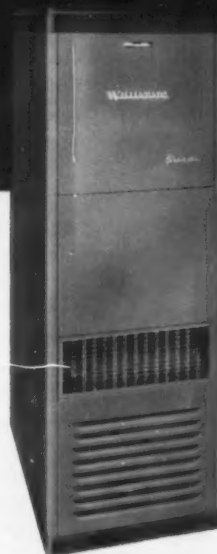
NEW... Miracle Burner... TWO STAGE OPERATION... famous Triplife iron and stainless steel ribbons... outstanding economy... whisper-quiet.



Famous Seal-Tite® cabinets in Hi-Boy, Lo-Boy and Counter-flow styles. Two-tone Frost green.

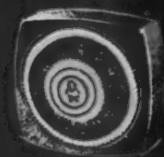


Hi-Boy Model

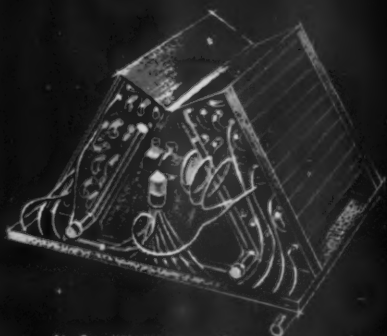


Counter-Flow Model

the difference!



TWO thermostats... outdoor thermostat adjusts burner flame size to meet changing temperatures.



Air Conditioning... the Gasaver is designed for summer cooling with EXTRA blower capacity where required.



Lo-Boy Model with Air Conditioning

new **WILLIAMSON** *Gasaver*[®]



Not just another furnace... new distinctive, exclusive features make the Gasaver different... set it apart from *all* other furnaces. *Customers recognize, want and will buy the difference that is Gasaver.* The Gasaver represents an engineering achievement, a positive contribution to modern home comfort.

BE A WILLIAMSON DEALER...

HAVE exclusive Gasaver... a tremendous advantage over your competition

PLUS exclusive Oilsaver in Hi-Boy, Lo-Boy and Counter-flow models

PLUS SUPER Series... a competitive line of quality units

PLUS famous Seal-Tite[®] Duct, Pipe & Fittings

PLUS the complete line of Williamson Air Conditioning units for residential or commercial installations

PLUS a complete line of *free* literature, engineering aids, and selling plans... all dealer designed and tested

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- ☐ WILLIAMSON Furnaces ☐ Gasaver ☐ Oilsaver ☐ Super Series
☐ Williamson Air Conditioning
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Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

WHAT'S HAPPENING . . .

(Continued from page 19)

ARI Launches Marketing Program Promoting Home Air Conditioning

WILMINGTON, DEL. — "Air Conditioning has become such an important part of modern living that it's not hard to visualize the day when the home without it, particularly in certain parts of the country, may be considered obsolescent," Neal J. Hardy, commissioner of the Federal Housing Administration, said recently.

Mr. Hardy spoke at the kickoff dinner launching the Air Conditioning & Refrigeration Institute's test marketing program designed to promote air conditioning in residential home construction in the Wilmington area.

same as those for operating or maintaining any other utility the property includes," he said. "Studies over the past few years show that reasonably accurate estimates of air conditioning costs are being used as a part of the utility cost estimates of the property."

"Research has demonstrated that air conditioning can benefit the health and general welfare of the home's occupants; that it can be installed at much less cost than formerly; and that its op-

(Continued on page 30)

Report Improved Business Picture

WASHINGTON, D. C. — Business activity in March showed a definite firming tendency, according to a review of the business situation prepared by the Office of Business Economics, United States Department of Commerce. This tendency was evident in the flow of personal income from production, in employment, industrial output, and retail trade, which were up or showed stability as the end of the quarter was reached. In addition, according to the report, new orders received by firms in durable goods manufacturing rose for the second successive month.

Will Help Sell Houses

He referred to the ARI-sponsored program as "the first step in a well-coordinated program the air conditioning industry is undertaking to help revitalize housing markets and at the same time spread the benefits of better living through quality construction."

Cooling Becoming Necessity

Noting that air conditioning is rapidly being accepted either as a necessity or normal accessory rather than a luxury, he pointed out that "FHA gives full valuation for any air conditioning of any kind that is installed," and added that an increasing number of air conditioned homes are being financed with FHA assistance.

"In estimating the borrower's prospective housing expense — what it will cost him to live in the house — the costs of operating a central air conditioning system are treated exactly the

Apprentices, Committees Receive Awards in 10th Annual Contest

MINNEAPOLIS — Winners in the 10th annual national joint apprenticeship award contest were recently announced by Edward P. Hudoba, secretary, National Joint Sheet Metal Apprenticeship Committee. Winners in each category (first, second, third and fourth year) received a cash prize as well as a certificate of award. Winning apprentices are:

First year category — Daniel Groeschel, Malone, Wis., first award; James W. Hanneken, Hardin, Ill., second; and Lee Cramer, Canton, O., third.

Second year category — John Bogdany, South Norwalk, Conn., first award; William L. Nowak, West Seneca, N. Y., second; and Eugene A. Finney, Seattle, Wash., third.

Third year category — Albert Blauw, Grand Rapids, Mich., first award; William E. Walden, St. Paul, Minn., second; and Clar-

ence Zaborowski, Milwaukee, third.

Fourth year category — Frank S. Malle Jr., Ventnor Pasadena, Md., first award; John Tabory, Parma, O., second; and Ted A. Bidwell Jr., Racine, Wis., third.

More than 1000 sets of problems for each of the four respective sets of groups were distributed to local joint apprenticeship committees in all parts of the United States and Canada, according to Mr. Hudoba.

The Portland Sheet Metal Joint Apprenticeship Committee of Portland, Ore., was selected as the winner of the plaque award for its contributions to the apprentice training program. The Toledo Sheet Metal Workers' Joint Apprenticeship Committee of Toledo, Ohio, received honorable mention for its work in the field of apprentice training.

(More news on page 27)



HE
DOUBLED HIS
EARNING POWER
OVERNIGHT

with Alcoa Aluminum Gutters

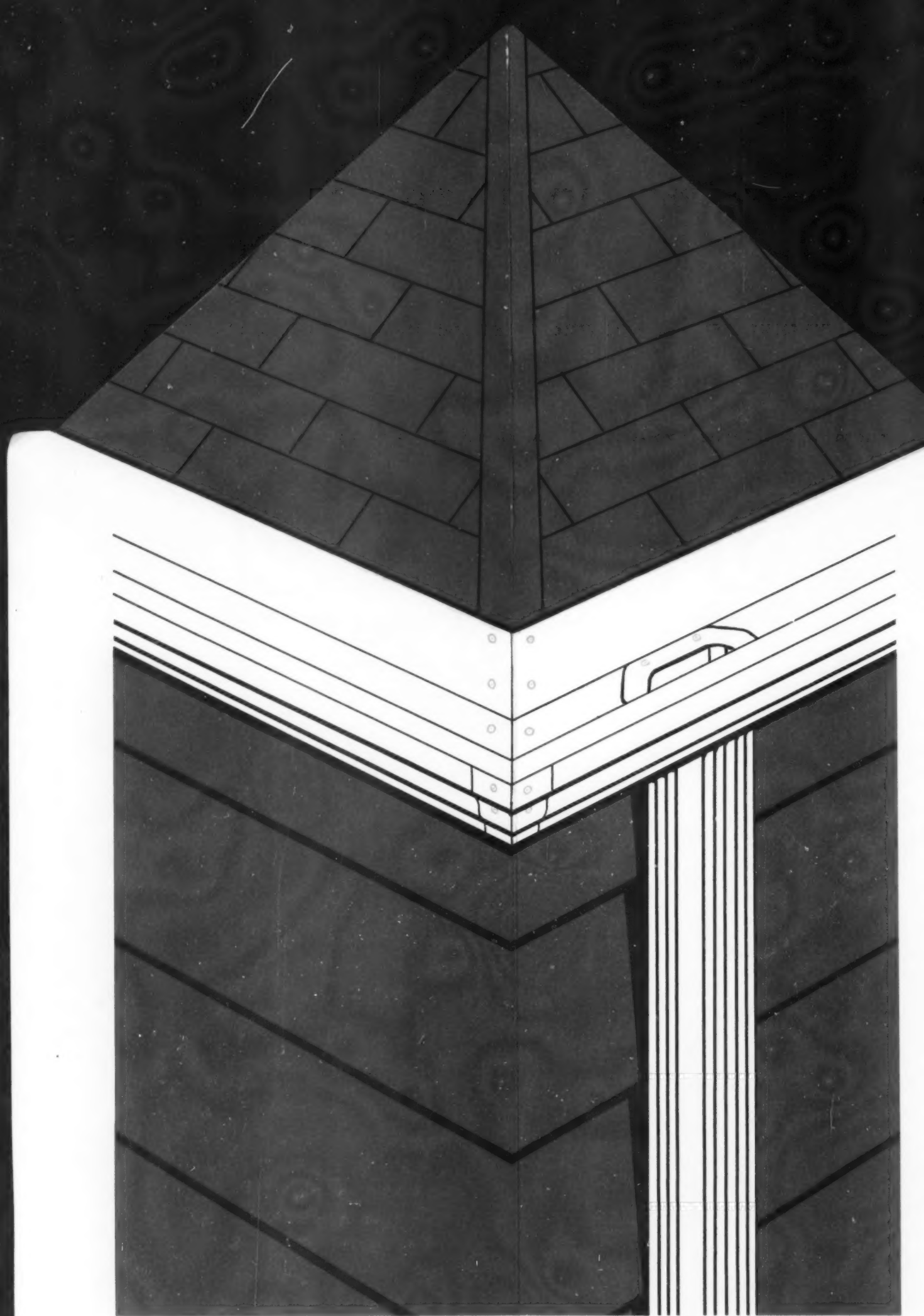
—
...
What
gutter
every
over, c



—a quality product you can sell at a premium price
...and earn more on every foot of system you hang!

...that *really* counts is not *how many* running feet of
...ter you hang each day, but *how much* you earn
...ery hour you work! There's more money left
...er, end of the week, when you sell and install

Alcoa® Aluminum Gutters and Downspouts. Rea-
sons are good and many:
Easier to sell because it's Alcoa Aluminum!
Here's the system for homeowners who want some-



thing *better*: Care-free aluminum, the modern metal! They're willing to pay extra for gutters that *last* . . . never need patching, painting or replacing. And when it comes to aluminum, 8 out of 10 homeowners know the Alcoa label: finest quality, from the world's leading producer.

No competition—the only one made by Alcoa!

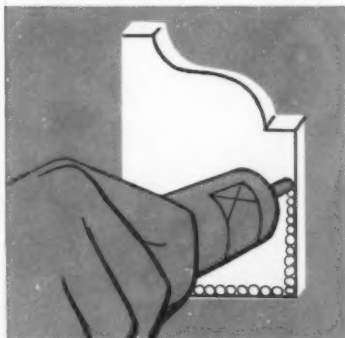
Better than any other ready-made aluminum system, Alcoa Gutters sell on features, not price; bring in full profit on every job. They're 20 per cent thicker—.032 in.—to take ice and snow loads.

Joints can't loosen or leak when they're aluminum-riveted and sealed properly with Alcoa's exclusive Gutter Seal. Alcoa's unique free-floating hanger system allows for expansion and contraction. And naturally rustproof Alcoa Aluminum is *alclad* for extra protection in any climate.

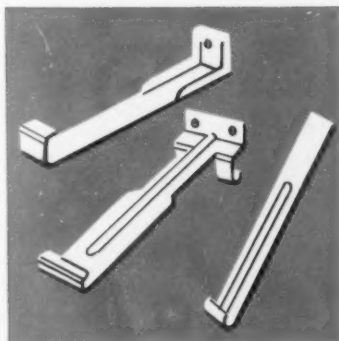
Designed for new houses or home modernization!

Alcoa Aluminum Gutters and Downspouts come in styles right for any home: 5-in. OG (K) Type; 4-in. Box; 5-in. Half Round—all in plain or stucco aluminum. Versatile hanger system speeds instal-

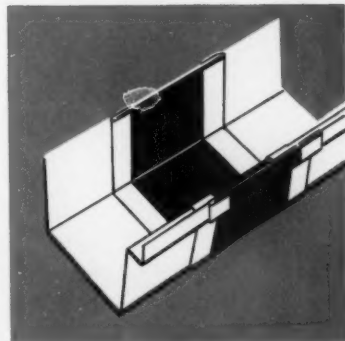
and Alcoa systems are easy to install snug and tight!



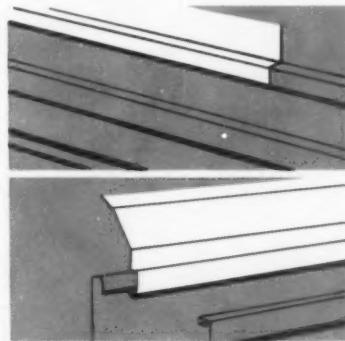
END CAPS and all joints are "riv-sealed": waterproofed with Alcoa Gutter Seal; cinched in seconds with Alcoa Aluminum "Pop" Rivets.



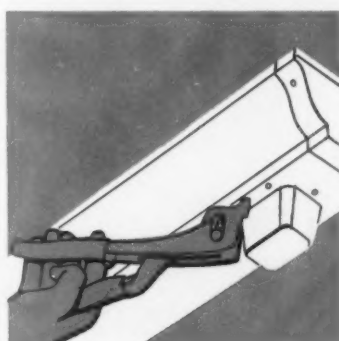
HANGERS: *bar*, used with fascia aprons; *strap*, used with roof aprons; *combination*, attached directly to fascia board—all 32 in. OC.



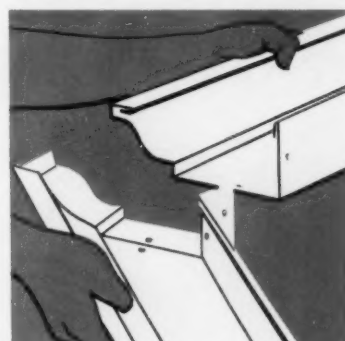
EXPANSION JOINT for long runs "gives" to prevent buckling. Long-lived rubberized expander is water-proof and weather-resistant.



APRONS: *roof type* for new construction; *fascia* for modernization.



EAVE TUBE is rivsealed in place after outlet is marked and cut.



MITER for inside and/or outside joining after gutter is cut.

PLUS: Downspout Clip, Downspout Anchor, Elbows, Alcoa Rivets, Alcoa Nails

lation on new or modernized houses. For homeowners who prefer decorative painting, Alcoa Alumalure® enamel is baked on to stay on; won't crack, chip, flake or peel. Matching accessories, too!



MADE BY ALCOA

For exciting drama watch "Alcoa Presents" every Tuesday evening - ABC-TV

MAIL COUPON TODAY FOR FREE FOLDER!

Alcoa Building Products, Inc.
1855-F Alcoa Building
Pittsburgh 19, Pa.

- ☐ Please send FREE installation folder on Alcoa Aluminum Gutters and Downspouts.
☐ Please have your distributor salesman call on me.

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____